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DIVISION OF NARCOTIC DRUGS

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The effect of the addition of a narcotic antagonist on the rate of development of tolerance and physical dependence to morphine[1]

By Nathan B. Eddy,[2] Modeste Piller,[3] Leo A. Pirk,[4] Otto Schrappe,[5] Sigurd Wende[6]

It was demonstrated by Isbell (1) that the daily administration of the narcotic antagonist nalorphine on a progressively increasing dosage schedule for twenty-eight days did not produce physical dependence in former opiate addicts. The subjects disliked the medication, and when it was abruptly withdrawn, signs of abstinence were not observed.

Lasagna & Beecher (2) found that in man nalorphine in single doses of 10 and 15 mg is a potent analgetic. Were it not for its unpleasant side effects, nalorphine might have proved to be the "non-addicting" analgetic so earnestly sought for a long time. These workers also reported that a mixture of 10 mg of morphine and 2 mg of nalorphine produced pain relief indistinguishable from that elicited by 10 mg of morphine. Thus, at the ratio used the narcotic antagonist did not interfere with morphine analgesia. Furthermore, Lasagna & Beecher suggested the possible usefulness of mixtures of this type in chronic pain, in the light of Isbell's findings that morphine and nalorphine in ratios of 10 to 1 and 5 to 1 produce a milder degree of physical dependence in former addicts than equivalent doses of morphine. This work, of which we had knowledge (3) at the time when we embarked on the programme to be described in this paper, included studies of the effects of chronic administration of such mixtures to post-addicts on an "addicting" and a "therapeutic" schedule. In the former case, narcotic-antagonist combinations in proportions of 10 to 1, 5 to 1, and 3 to 1, respectively, were given q. 3-4 hours for 28-30 days in progressively increasing doses. Following withdrawal of such mixtures, the abstinence phenomena were much milder than those observed after comparable periods of addiction to morphine in the same patients. When "therapeutic" levels were used (10 mg of morphine and 1 mg of nalorphine given q. 4 hours for 31 days), the intensity of abstinence signs upon withdrawal was equal to that following abrupt discontinuance of morphine alone given in the same amounts to the same subjects for the same period of time.

However, the effects of narcotic-antagonist mixtures administered in therapeutic doses to patients without previous narcotic experience had not been studied. This appealed to us as a worth-while programme, since it was conceivable that the rate of development of physical dependence would be different in former addicts and in subjects who had no narcotic experience.

One of the difficulties in studying morphine-nalorphine mixtures is the considerable difference in the duration of action of the two agents. The effects of nalorphine last for not more than three to four hours, but some of the effects of morphine persist much longer. Consequently, it seemed desirable to employ a narcotic antagonist which is distinguished by longer duration of action. Fraser & Isbell (4) reported levallorphan to have this quality, as compared with nalorphine. Therefore levallorphan was thought to be the more suitable agent for combination with morphine.

There were three groups of investigators who happened to be interested at the same time in studying the problem of whether the addition of a narcotic antagonist to morphine would alter the "addictiveness" of the latter. Two of these groups were European and one was American. They were brought together because of their mutual interest,[7] and agreed upon a common protocol which was formulated by one of us (N. B. E.), assisted by one of the other authors (L. A. P.), who was also responsible for the correlation of all data. The clinical work was carried out in Berlin, Hamburg and New York.

Plan

The protocol for all three centres (Berlin, Hamburg and New York) will be the same.

Selection of Patients

Individuals with persistent, fairly constant pain of sufficient severity to require parenteral narcotic medication, which will probably be needed for a prolonged period, will be selected. However, patients with cardiac or circulatory disease are to be excluded. Moreover, only subjects with

[1] The work to be described was carried out in New York, under the direction of Dr. Daniel Laszlo (deceased); in Hamburg, under the direction of Prof. Dr. Hans Bürger-Prinz; and in Berlin, under the direction of Prof. Dr. Helmut Selbach. We are greatly indebted to these three principals for the guidance, help and encouragement they afforded us from the inception of the study to its end.

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[7] We are indebted to F. Hoffmann-La Roche & Company, Ltd., of Basle, Switzerland, and Hoffmann-La Roche Inc., of Nutley, N.J., U.S.A. for initiating intercommunication of the interested groups and for financial support of the investigative programme which followed.

little previous narcotic experience will be eligible for admission to the study — subjects in whom the presence of physical dependence has been ruled out by the negative outcome of a screening allyl test (see below).

Drugs and Drug Administration

For pain relief two drugs will be used — viz. solutions of morphine sulfate [8] and of a 50 to 1 morphine-levallorphan (Lorfan ®) tartrate [8] mixture. These solutions will be supplied randomized under ten different code designations (*A* to *J*) which need not be identically applied in the three centres. The meaning of the code will be unknown to all workers, so that the study will be carried out in a double-blind fashion. However, all investigators will be aware of the morphine concentration and the fact that each of the ten drug solutions furnished contains the same amount of morphine.

The coded drugs will be assigned to successive patients in alphabetical sequence. After ten individuals have been introduced, the eleventh subject will again receive drug *A*, and so on. Once analgetic medication is instituted in a given patient, he will continue to receive the same drug solution for the duration of the study.

The recommended dose of analgetic is 10 mg of morphine (alone or in combination with levallorphan) per 60 kg body weight, with a dose adjustment of 0.2 mg of morphine per 1.2 kg weight variation from 60 kg.

According to the patient's complaints and the relief obtained, the supervising physician will adjust, throughout the study, the dose of the assigned drug to give adequate analgesia. If 10 mg of morphine/60 kg body weight is less or more than satisfactory, more or less than 10 mg/60 kg will be administered. The principle to be followed at all times is the smallest dose which will give adequate relief. The dose will be raised only in accordance with this principle, and repeated only when recurrence of pain demands additional narcotic medication. Drug administration will be subcutaneous. Analgetic and sedative drugs other than the coded materials will be avoided as far as possible.

The identity of nalorphine (Nalline ®) hydrochloride,[9] supplied as commercially available, and of physiologic saline solution used in the allyl tests and placebo tests, respectively, will be known to the investigators, but not to the patients. The details of the administration of these tests will be described below.

Development of Tolerance

The total amount of morphine given to each patient per week will be calculated. An increase of the weekly narcotic requirements of a given patient may be due to a change for the worse in his clinical condition. However, such an increase may also suggest the development of tolerance. If there is considerably greater or faster increase of narcotic requirements in the entire group of patients receiving morphine only, as compared with the entire group of patients receiving the morphine-levallorphan mixture, this will indicate that the addition of the narcotic antagonist to morphine prevented, deferred or attenuated the development of tolerance. Conversely, levallorphan, on prolonged administration, might to some extent interfere with morphine-induced analgesia, and a considerably greater increase of narcotic requirements in the entire groups of patients on the combined medication will be interpreted accordingly.

Another attempt at determining the development of tolerance will be made by estimating the degree of each patient's pain before administration of both the initial and one weekly dose of the assigned drug and the degree of pain after these injections until the next analgetic dose is given. In carrying out these estimations, the patients' statements with respect to severity of pain will be recorded by a specially trained nurse observer. The degree of pain will be given the following numerical values: 4, for agonizing pain; 3, for severe pain; 2, for moderate pain; 1, for slight pain; and 0, for no pain. The degree of pain relief will be expressed at half-hour intervals as the difference between the degree of pain present before and that at the time of observation after narcotic medication. Subsequently, the total post-medication pain relief — the pain relief score — will be determined as the sum of these differences. A diminishing pain relief score, with a maintained or increasing individual dose of assigned drug, could be indicative of development of tolerance.

Development of Physical Dependence: the Allyl Test

The development of physical dependence will be judged by the appearance of abstinence phenomena following subcutaneous injection of nalorphine (allyl test). The signs to be looked for in these tests and in the placebo tests (see below) and the point scores assigned to the individual abstinence phenomena are listed in table 1. These are based on the scoring system of Himmelsbach (5) with some modifications.

TABLE 1

Criteria for physical dependence

Abstinence signs	*Symbol*	*Numerical value*
Systolic blood pressure ..	BP	1 point for each 2 mm Hg maximal rise, total not to exceed 10 points
Rectal temperature	T	1 point for each 0.1° rise
Respiratory rate	R	1 point for each respiration per minute increase
Yawning	Y	1 point
Lacrimation	La	1 point
Rhinorrhea	Rh	1 point
Perspiration	P	1 point
Goose flesh	G	3 points
Mydriasis	My	3 points
Tremor	Tr	3 points
Restlessness	Re	5 points
Emesis	Em	5 points for each act of emesis
Nausea	Na	3 points

A total point score of 10 or more will be considered indicative of the presence of some degree of physical dependence.

The allyl test will be performed initially as a screening procedure (screening allyl test) before each patient's admission to the study and afterwards at two-week intervals (routine allyl tests). Except for the screening allyl test, which may be carried out at any time of day, the allyl tests and the placebo

[8] To be referred to hereafter without salt designations.
[9] See footnote 2.

tests must be administered on all occasions and to all patients in the same time relationship (2 hours) to the preceding dose of analgetic.

The screening test will be carried out as follows. Systolic blood pressure, rectal temperature and respiratory rate will be determined, and about five minutes thereafter 3 mg of nalorphine will be injected. At about twenty minutes after antagonist administration, blood pressure, temperature and respiratory rate will be re-determined. From the time of the nalorphine injection the patient will be observed for other signs characteristic of the abstinence syndrome. If the total point score reflects the absence of physical dependence, and unless the side effects are very disturbing to the patient, a second (5 mg) nalorphine dose will be given twenty-five minutes after the preceding dose and the whole procedure repeated. Again, if the outcome of the test remains negative, a third (8 mg) nalorphine dose will be administered at the same time-interval, followed by the above-mentioned measurements and observations. Obviously, if the outcome of the screening allyl test is positive the patient should not be included in the study. All subsequent routine allyl tests will be carried out by giving just one 5 mg dose of nalorphine.

In order to avoid drawing the patient's attention to the unusual circumstances surrounding the allyl tests and also to be able to appraise the results in these tests adequately, placebo injections (1 ml. of saline solution) will be given bi-weekly on days other than those on which the effect of the antagonist is observed. In both the routine allyl and placebo tests systolic blood pressure, rectal temperature and respiratory rate will be measured five minutes prior to and at thirty-minute intervals after the administration of nalorphine and saline solution, respectively, for two hours (four post-injection measurements). In addition to these measurements, all other symptoms listed in table 1 will be looked for during the two-hour period of observation. In calculating the total point score, the differences between the maximal four post-injection measurements for blood pressure, temperature and respiratory rate and the corresponding pre-injection values will be taken into consideration.

If the average total point scores in the routine allyl tests in the group of patients on morphine alone increase more markedly or more rapidly, as compared with the group of patients on the morphine-levallorphan mixture, this will indicate that the addition of the antagonist to morphine interfered with the development of physical dependence.

Deviations from and extension of plan

In general, the details of the plan as outlined above were observed with but minor deviations. Of these the following are worthy of note.

Admission of Patients with Positive Screening Allyl Tests and with Previous Narcotic Experience

The total point score in the screening allyl test for patient K. C. (N.Y.5) [10] was 17 (see table 7). This score definitely indicates the presence of physical dependence, but since the patient's initial narcotic requirements were very low (see table 3), she was admitted to the study although this was contrary to the stipulations specified in the section "Plan".

Similarly, the abstinence signs observed in the screening allyl test for patient E. A. (H.12) included mydriasis, so that the presence of some degree of physical dependence could not be excluded. However, since the total score in this test was only 7 (see table 6), she too was admitted to the study. Since the initial narcotic requirements were low also in this case (see table 2), the data pertaining to the increase of weekly narcotic requirements of both these cases were utilized in the assessment of the development of tolerance, but the findings in the routine allyl tests were disregarded in the evaluation of the development of physical dependence.

Finally, patient Mc. S. M. (N.Y.6) prior to admission to this study (main project) had received approximately 22 mg of morphine per day for almost five weeks, during which time she was included in the New York collateral project (see below). Since the total point scores of the routine allyl tests carried out during the latter project were all under 15 [11] (see case N.Y.Coll. 7 [12] in table 11), and since the patient required continuation of narcotic medication, she was transferred to this study. Again, this constitutes a deviation from the original plan according to which only subjects with little previous narcotic experience were eligible for admission to this study. Since this patient's initial narcotic requirements were low (see table 2), the data concerning the increase of her weekly morphine requirements were included in the evaluation of the development of tolerance. However, the results in the routine allyl tests recorded in the second and third weeks were considered to have occurred in the seventh and eighth weeks, respectively.

Gaps in Narcotic Medication

In a few instances there were gaps in the administration of narcotic medication because the drug was depleted. Pertinent details are indicated in tables 2 and 3.

Nalorphine Doses in Allyl Tests

The nalorphine doses in some of the screening allyl tests and of subsequent routine allyl tests were reduced as an added element of safety, because in some instances the antagonist doses used in accordance with the original plan precipitated rather severe side reactions, such as marked anxiety, dysphoria, shakiness and others. Therefore the following amended dosage plan was adopted in the New York centre midway in the study. In the screening allyl tests, 1, 3 and 5 mg of nalorphine were administered instead of 3, 5 and 8 mg. Furthermore, in the routine allyl tests 1 mg of nalorphine was injected initially. If the total point score, calculated as in the screening allyl tests, reflected the absence of physical

[10] For the purpose of identification, patients in the Berlin, Hamburg and New York centres are designated "B.", "H." and "N.Y.", followed by consecutive numbers.

[11] Cf. paragraph "Indication for Presence of Physical Dependence" (below).

[12] For the purpose of identification, patients in the New York collateral project are designated "N.Y. Coll.", followed by consecutive number designations.

TABLE 2

Individual doses (initially, at end of fourth week and finally), and weekly doses of morphine sulfate (M.S.) administered to patients in group I (morphine alone)

Patient identification		Individual doses			Doses during weeks										Tolerance	
Case	Initials	Initially	At end of fourth week	Finally	1	2	3	4	5	6	7	8	9	10	At end of fourth week	Finally (Weeks of treatment) [1]
B.3 [2]	D.F.	10	..	20	230	670	760	260 [a]	..	..	..	..	..	..	..	Definite (4)
B.4	H.E.	10	25	25	155	275	405	560	700	700	700	600 [b]	..	..	Definite	Definite (8)
B.6	J.S.	9	20	20	277	505	520	560	520	620	120 [c]	..	..	..	Definite	Definite (7)
B.8	P.F.	10	20	20	140	180	220	360	360 [b]	..	..	..	..	..	Definite	Definite (5)
B.12 [4]	S.M.	10	10	20	340	720	800	590	260 [d]	1 040	460 [e]	supply depleted	760 [b]	720 [b]	Definite	Definite (10)
N.Y.4	D.M.	8	..	12	160	108 [a]	..	..	..	..	..	..	..	..	..	Probable (2)
N.Y.6 [5]	Mc.S.M.	12 [f]	12	12	152 [g]	312	384	372	..	..	..	..	..	..	Probable	Probable (4)
H.7	S.E.	10	10	10	160	180	170	170	70 [d]	..	..	..	..	..	None	None (5)
H.12	E.A.	10	..	20	170	340	60 [h]	..	..	..	..	..	..	..		Definite (2)
Total		89	97	159	1 904 [7]	..	..	3 220 [8]	..	..	..	..	..	..	*Total*	*Total*
Average		9.9	..	17.7	211.6	..	..	460	..	..	..	..	..	..	Definite: 4	Definite: 6
Average [6]		10.2	16.2	..	224.8	..	..	460	..	..	..	..	..	..	Probable: 1	Probable: 2
Percentage increase..		..	59	78.6	..	..	..	104.6	..	..	..	..	..	..	None: 1	None: 1

[1] All doses given in mg.
[2] Not necessarily full weeks.
[3] Case B.3 same as B.11 in group II.
[4] Case B.12 same as B.5 in group II.
[5] Case N.Y. 6 same as N.Y.Coll. 7 in group I of collateral project.
[6] Averages only for those patients who received medication for four weeks or longer.
[7] Corrected total, including additional 120 mg m.s. (estimated dose patient N.Y. 6 would have received during days when drug supply was depleted).
[8] Corrected total, including 348 mg m.s. (estimated dose patient B. 3 would have received during last four days of this week).
[a] Only 6 days.
[b] Only 6 days.
[c] Only 1 ½ days.
[d] Only 4 days.
[e] Only 3 days plus 1 dose on fourth day.
[f] First dose was 8 mg, but all subsequent doses were 12 mg.
[g] In addition, patient received 400 mg Demerol during this week because drug supply was depleted.
[h] Only 1 day.

dependence, a second (2 mg) dose of nalorphine was given. Thus, 1 mg of antagonist, possibly followed by 2 mg, was injected in place of a single 5 mg dose. This modification required a slight amendment of the time-table of the procedure.

The amended regimen was applied in all allyl tests (screening and routine) done for patient K. C. (N.Y. 5) and in the routine allyl test done for patient M. A. (N.Y. 1) during the fifth week in which she was studied. Similarly, the nalorphine doses used in several of the screening and routine allyl tests carried out for some of the other New York patients and for several of the patients in the Berlin and Hamburg centres were lower than specified in the section " Plan ". Details of these changes, which were also made for safety reasons, may be gathered from tables 6 and 7.

Indication for Presence of Physical Dependence

It became evident from the observations made in the placebo tests that the injection of saline solution was accompanied by a rise of systolic blood pressure and respiratory rate in the majority of patients. In fact, the average point score following the placebo tests was 6.4 (see table 10). Consequently, it was decided to consider the outcome of any allyl test to be indicative of the presence of some degree of physical dependence if the total point score was 15 or more (not 10, as originally planned), provided such a score was contributed to by something more than changes in blood pressure and respiratory rate.

Chance Change of Medication in Two Patients during Different Courses of Treatment

Two patients in the Berlin centre — viz. D. F. and S. H. — were admitted to the study twice. On their second admission — after a medication-free interval of 11 and 7 months, respectively — these patients were considered new cases. For their second course of treatment they were thus assigned the drug solutions which were next in the alphabetical sequence of the coded preparations. After decoding the solutions, it became evident that patient D. F. received morphine during the first course of treatment and morphine-levallorphan during the second course of therapy and that patient S. H. was given the drug mixture first, followed by morphine on his second admission.[13] Different medications were therefore used, merely by chance, in both instances on the two occasions. The minor deviation from the original plan to maintain a given patient on the same drug solution for the duration of the study turned out to be a fortunate one, since both cases thus served as their own controls in evaluating the problems under investigation.

Patient S. H., after another medication-free interval of 40 days, received a third course of treatment consisting of morphine alone. Since drug administration was not carried out in a double-blind fashion, the findings during this third course are not included in the tabular summaries covering

[13] Patient D. F. was designated B. 3 when he was on morphine and B.11 when he received the morphine-levallorphan combination. Patient S. H. was case B.15 when he was given the mixture and B.12 when he was on morphine.

TABLE 3

Individual doses[1] (initially, at end of fourth week and finally) and weekly doses of morphine sulfate (M.S.) administered to patients in group II (morphine plus levallorphan)

Patient identification		Individual doses			Doses during weeks														Tolerance	
Case	Initials	Initially	At end of fourth week	Finally	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	At end of fourth week	Finally (Weeks of treatment)[2]
B.1	A. P.	10	10	10	210	270	180	170	160	150	100	140	20[a]	..	..	..	..	..	..	None	None (9)
B.2	M. E.	10	20	20	130	235	340	345	425	650	545	470	100[b]	..	..	..	..	..	..	Definite	Definite (9)
B.5[3]	S. H.	15[b]	20	10	575	610	690	660	700	700	480	300	320	300	310	310	360	310	70[c]	Doubtful	None (15) Definite (3)
B.7	B. H.	8	..	15	126	135	155[d]	..	..	..											
B.9	E. F.	10	10	15[e]	400	540	590	520	635	810	910	820	345[f]	..	..	..	..	..	..	Probable	Definite (9)
B.11[4]	D. F.	10	20	20	410	670	830	680	880	940	810	20[g]	770	730	..	..	..	..	..	Definite	Definite (10)
B.13	G. T.	10	..	10	20	30[d]	..	..	..	..											None (2)
N.Y.1	M. A.	10[e]	8	8	98	128	112	152	176	88[i]	..	..	..	..	..	..	..	..	..	Doubtful	Doubtful (6)
N.Y.2	H. A.	18[j]	10	10	474	300	358	212	10[h]	..	..	..	..	..	..	..	..	..	..	None	None (5)
N.Y.3	S. A.	10	..	10	220	180	250	40[a]	..	..	..	..	..	..	..	..	..	..	..		None (4)
N.Y.5	K. C.	6	6	10	174	180	174	186	200	224	290	..	..	..	..	..	..	..	..	None	Definite (7)
H.11	H. B.	10	10	10	80	80	80	80	80	80	10[a]	..	..	..	..	..	..	..	..	None	None (7)
Total		127	114	148	2 917	..	..	3 005[k]	..	..	..	..	..	..	..	..	..	..	..	*Total*	*Total*
Average		10.6	..	12.3	243.1	..	..	333.9	..	..	..	..	..	..	..	..	..	..	..	Definite: 2	Definite: 5
Average[5]		11.0	12.7	..	283.4	..	..	333.9	..	..	..	..	..	..	..	..	..	..	..	Probable: 1	Doubtful: 1
Percent increase		..	15.1	16.5	..	..	..	17.8	..	..	..	..	..	..	..	..	..	..	..	Doubtful: 2	None: 6
																				None: 4	

[1] All doses given in mg.
[2] Not necessarily full weeks.
[3] Case B.5 same as B.12 in group I.
[4] Case B.11 same as B.3 in group I.
[5] Averages only for those patients who received medication for four weeks or longer.
[a] Only 1 day.
[b] Initial dose was 11 mg, but with the exception of the second dose (19 mg) all subsequent doses during first week were 15 mg.
[c] Only 3 days.
[d] Only 4 days.
[e] Last single dose was 10 mg, but almost all preceding doses during last three weeks were 15 mg.
[f] Only 3 days plus 1 dose on the fourth day.
[g] Only 1 dose (drug supply depleted).
[h] Initial dose was 20 mg, but all subsequent doses during first 6 days of first week were 10 mg.
[i] Only 3 days plus 1 dose on fourth day.
[j] Initial dose was 24 mg, but all subsequent doses during first 6 days of first week were 18 mg.
[k] Total excludes N.Y.3.

the double-blind experiments, but they will be discussed in the section "Results".

Extension of Original Programme — Collateral Projects

The aforementioned third course of treatment administered to patient S. H. constitutes an extension of the original programme. Furthermore, double-blind studies, deviating in their design from the original plan, were carried out in the Hamburg and New York centres (collateral projects). Details of these studies are presented in two separate communications (6, 7) but a brief discussion of the New York collateral project is included with this report. In the latter programme, morphine alone or in combination with levallorphan (in the 50 to 1 ratio) was administered chronically to subjects who in all but one case did not need narcotic medication and in whom the presence of physical dependence had been ruled out by the negative outcome of a screening allyl test. In terms of morphine, single doses of 10 mg/60 kg with the necessary adjustments were given t.i.d. and the patients subjected at approximately weekly intervals to allyl tests. In general, treatment was continued for four weeks, followed by abrupt discontinuance of medication for observation of spontaneous withdrawal symptoms.

In the screening allyl tests, 3 mg of nalorphine were administered, with the exception of one subject who received three fractional doses of the antagonist (1, 3 and 5 mg) at intervals of 25 minutes. In the routine allyl tests, 3 mg of nalorphine were used for the first two tests and 6 mg for the third and fourth tests, with very minor deviations. Details of these changes may be gathered from tables 11 and 12.

Since the dose of morphine was standardized and since most patients did not require narcotic medication, the development of tolerance could obviously not be studied in this group of patients. The main objective of the New York collateral project was to obtain further data which would indicate whether or not the addition of levallorphan to morphine interferes with the rate of development of physical dependence.

Case material

Main Project

In the three centres a total of 29 patients were originally admitted to the study. However, 10 subjects were dropped from the programme at a very early stage of the investigation,

mostly because in these instances the design of treatment could not be followed, for reasons beyond our control.

Thus, the total series consisted of 19 patients — 10 males and 9 females — whose ages ranged from 23 to 70 years (average 50.6 years). The numbers of subjects included in the Berlin, Hamburg and New York centres were 10, 3 and 6, respectively. Thirteen patients were suffering from cancer, and one patient each had an injury of the cervical spinal cord, chronic polyarthritis, a hypernephroma, stump pain, a hygroma of the left hand and syringomyelia.

As mentioned in the section "Deviations from and Extension of Plan", the two patients in the Berlin centre who were admitted to the study twice were both considered as separate cases during the two courses of treatment they received in a double-blind fashion. Therefore the entire case material comprised 21 cases. After decoding the drugs, the patients were grouped together according to the medication they received. Thus, group I (9 cases) included the patients to whom morphine alone was administered and group II (12 cases) the patients who were given the morphine-levallorphan mixture. In the former group there were 4 males and 5 females (average age 54 years) and in the latter group 8 males and 4 females (average age 46.5 years).

New York Collateral Project

Fifteen patients — 10 males and 5 females — whose ages ranged from 32 to 75 years (average 57.8 years) were included in the above project.[14] Eight were suffering from cancer and one patient each had fibrous dysplasia of bone, polycythemia, peripheral neuropathy, spondylitis deformans, Paget's disease, osteoporosis and a Pancoast's tumour. As in the main project, the patients were grouped together according to the medication they received after the drugs had been decoded. Thus, group I of the collateral project (7 cases) includes the patients to whom morphine alone was administered and group II of the collateral project (8 cases) the patients who were given the morphine-levallorphan mixture. In the former group there were 4 males and 3 females (average age 57.3 years) and in the latter group 6 males and 2 females (average age 58.1 years).

Results in main project

Development of Tolerance

Tables 2 and 3 present a record of morphine administration in groups I and II, respectively. Included are: (1) individual doses of morphine given initially, at the end of the fourth treatment week and finally for each patient, and (2) the total amount of morphine administered to each patient each week.

As is seen from these tables, the final individual dose of morphine (average of all cases) was increased by 78.6% for the group of patients who received morphine alone and by 16.5% for the morphine-levallorphan mixture group. Considering only the cases which received the medications for 4 weeks or longer, the average percentage increase in the size of the individual doses at the end of 4 weeks was 59 for morphine and 15.1 for the mixture. For the same cases the narcotic consumption was on the average 104.6% greater in the fourth than in the first week for morphine, but only 17.8% greater for the morphine-levallorphan mixture. By the same token, there was less tolerance to the analgetic effect of morphine when this narcotic was combined with levallorphan. If the data pertaining to patient N.Y.5, who was admitted to the study in spite of the unquestionable presence of physical dependence, are excluded, the resulting figures differ only insignificantly from those presented above.

Tolerance was judged to be definitely, probably or doubtfully evident or absent as listed below.

Tolerance	*Group I—9 patients Morphine alone (6 patients carried through 4 weeks or longer)*	*Group II—12 patients Morphine plus levallorphan (9 patients carried through 4 weeks or longer)*
At end of 4th week		
Tolerance		
Definitely evident	4	2
Probably evident	1	1
Doubtfully evident	—	2
Absent	1	4
Finally		
Tolerance		
Definitely evident	6	5
Probably evident	2	—
Doubtfully evident	—	1
Absent	1	6

As is seen, after 4 weeks of treatment tolerance was considered to be definitely evident in 4 of 6 cases (66.6%) which received morphine for 4 weeks or longer, but only in 2 of 9 cases (22.2%) which were on the morphine-levallorphan mixture for that period of time. Conversely, after 4 weeks of treatment tolerance was considered to be absent in only 1 of 6 cases (16.6%) which received morphine for 4 weeks or longer, but in 4 of 9 cases (44.4%) which were on the mixture for that period.

Furthermore, it appears that, at the end of treatment, tolerance was considered to be definitely evident in 6 of 9 cases (66.6%) on morphine and in 5 of 12 cases (41.7%) on the combined medication. Contrariwise, at the end of treatment tolerance was considered to be absent in only 1 of 9 cases (11.1%) which received morphine, but in 6 of 12 cases (50%) which received the mixture. This difference in the incidence of absence of tolerance in favour of the mixture becomes even more impressive if one considers that the average duration of therapy was 4.7 weeks for the patients on morphine, but 6.5 weeks for those who received the morphine-levallorphan combination.

Tables 4 and 5 present a record of the pain relief scores in groups I and II, as determined for each patient.

As can be seen, the pain relief scores fluctuated to a considerable extent during the course of treatment in some of the

[14] Case N.Y.Coll. 7 was later included in the main project as case N.Y.6.

TABLE 4

Pain relief scores (P.S.) recorded for patients in group I (morphine alone)

Patient identification	M.S. dose [1]	Initial P.S.	Pain relief scores after M.S. doses during week																	
			1		2		3		4		5		6		7		8		9		10	
			M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.
B.3 [2]	10	10	..	..	15	2	20	0	20	6	..	..	..	..	..	..	..	..	..	..	..	..
B.4	10	11	..	..	15	11	20	8	20	8	25	8	25	8	25	8	20	0	..	..	..	..
B.6	9	11	..	..	15	10	20	6	20	7	20	0	20	0		..	..	..	..	..	..	..
B.8	10	23	..	..	15	5	15	3	20	10	20	10	..	..	..	..	..	..	..	..	..	..
B.12 [2]	10	4	..	..	10	3	10	4	20	2	10	4	20	2	20	9	..	..	20	3	10	1
N.Y.4	8	17	..	..	12	11	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	8 [5]	3 [5]																				
N.Y.6 [4]	12 [5]	14 [5]	12	7	12	8	12	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..
H.7	10	8	10	6	10	11	10	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..
H.12	10	6 [6]	..	..	10	9	10	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..

[1] All doses given in mg.
[2] Case B.3 same as B.11 in group II.
[3] Case B.12 same as B.5 in group II.
[4] Case N.Y. 6 same as N.Y. Coll. 7 in group I of collateral project.
[5] Indicates that two P.S.s were recorded initially.
[6] H.12 patient fell asleep — incomplete observation.

TABLE 5

Pain relief scores (P.S.) recorded for patients in group II (morphine plus levallorphan)

Patient identification	M.S. dose [1]	Initial P.S.	Pain relief scores after M.S. doses during week																									
			1		2		3		4		5		6		7		8		9		10		11		12		13		14		15	
			M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.	M.S. dose	P.S.
B.1	10	16	..	..	10	13	10	8	10	0	10	6	10	6	10	8	10	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..
B.2	10	38	..	..	10	11	20	7	15	4	25	8	25	11	25	8	25	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..
B.5 [3]	11	3	..	..	15	3	15 [5]	0 [5]	20	2	..	..	20	2	10	0	10	0	10	5	10	0	10	4	10	11	10	4	10	2	10	2
							20 [5]	4 [5]																								
B.7	8	10	..	..	10	6	20	21							..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
B.9	10	2	..	..	10	6	10	9	10	3	10	11	10	4	10	5	10	6	10	6	..	..	..	..	..	..	..	..	..	..	..	..
B.11 [2]	10	8	..	..	10	8	10	6	20	2	20	3	20	5	10	7	..	..	..	..	10	1	..	..	..	..	..	..	..	..	..	..
B.13	..	..	..	..	10	21	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
N.Y.1	20	15	8	13	8	7	8	18	8	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
N.Y.2	24	24	18	23	12	20	12	15	10	16	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
N.Y.3	10	12	10	7	..	..	10	21			..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
N.Y.5	6	24	6	34	6	29	6	20	6	13	..	..	6	19	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
M.11	10	6 [4]	..	..	10	4 [4]	10	5 [4]	10	4 [4]	10	5 [5]	10	2 [5]	10	5 [5]	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

[1] All doses given in mg.
[2] Case B.5 same as B.12 in group I.
[3] Case B.11 same as B.3 in group I.
[4] H.11. Patient fell asleep — incomplete observations.
[5] Indicates that two P.S.s were recorded in this week.

patients in both groups. Yet, it is obvious that by and large the scores are fairly consistent with the estimates of tolerance. Details may be gathered by comparing the data in tables 4 (group I) and 5 (group II) with the entries in the right-hand columns of tables 2 and 3.

Development of Physical Dependence

The point scores for the signs indicative of physical dependence for each patient and each allyl test (screening and routine tests) are presented in tables 6 (group I) and 7 (group II). Tables 8 and 9 summarize these scores per patient and per test for those cases in the two groups which received the screening and at least one routine allyl test. Thus, patients N.Y.4 and B.13 who are included in tables 6 and 7, but for whom only screening tests were performed, were omitted from tables 8 and 9. The results of the placebo tests are presented in table 10.

Eighty-six screening and routine allyl tests were done in the course of this study. Of these, 58, 13 and 15 were carried out in the Berlin, Hamburg and New York centres, respectively. Of the 21 screening allyl tests performed, all were negative with the exception of those carried out for patients H.12 (group I) and N.Y.5 (group II), as pointed out previously in this paper.

TABLE 6

Point scores in screening allyl tests (S.A.T.) and in allyl tests (A.T.) during treatment with narcotic, recorded for patients in group I (morphine alone)

Patient identification	Nalorphine dose [1]			Abstinence signs													Total score [2]
				PB	T	R	Y	La	Rh	P	G	My	Tr	Re	Em	Na	
Screening allyl test																	
B.3 [3]	*3*	5	8	..	1	..	..	..	..	..	..	..	..	..	..	..	1
B.4	3	*5*	8	6	..	..	..	..	..	1	..	..	..	..	..	..	7
B.6	3	*5*	*5*	..	..	..	..	..	..	1	..	..	..	..	..	..	1
B.8	3	5	*8*	..	4	2	..	..	..	..	..	..	..	..	..	..	6
B.12 [4]	3	*5*	..	..	4	..	..	..	..	..	..	..	..	..	..	..	4
N.Y.4	3	5	*8*	10	..	..	..	..	..	..	..	..	..	..	..	..	10
N.Y.6 [5]	..	6	..	5	6	..	..	..	..	..	..	..	..	..	..	..	11
H 7	*3*	5	..	3	2	..	..	..	..	..	..	..	..	..	..	..	5
H.12	3	*5*	..	..	1	..	..	..	..	1	..	3	..	..	..	..	7
First week																	
H.7	..	5	..	3	1	1	..	..	..	..	..	..	..	..	..	..	5
Second week																	
B.12 [4]	3	..	..	10	..	2	..	..	..	..	..	..	..	..	..	..	12
N.Y.6 [5]	3	..	..	5	4	..	..	..	..	..	..	3	..	..	..	..	14
H.7	..	5	..	..	5	5	..	..	..	..	..	..	..	..	..	..	10
H.12	3	..	..	10	..	2	..	..	..	..	..	3	..	5	..	..	20
Third week																	
B.3 [3]	..	5	..	10	1	3	..	..	..	1	..	..	..	..	..	..	15
B.4	..	5	..	8	5	5	..	..	..	..	..	..	..	..	..	..	18
B.6	..	5	..	10	3	12	..	..	..	1	..	..	..	..	..	..	26
B.8	..	5	..	1	*5*	4	..	..	..	..	..	..	..	..	..	..	10
B.12 [4]	3	..	..	10	..	3	..	..	..	..	..	..	..	..	..	..	13
N.Y.6 [5]	3	..	..	5	2	10	..	..	1	..	..	3	..	5	..	..	26
H.12	3	..	..	10	..	5	..	..	..	1	..	3	..	*5*	..	3	27
Fourth week																	
B.3 [3]	..	5	..	10	..	1	..	..	..	1	3	3	..	..	..	..	18
B.12 [4]	3 *	..	..	8 *	3	3 *	..	..	..	..	..	..	..	..	..	..	14 *
	3 *	..	..	8 *	..	1 *	..	..	..	..	..	..	..	..	..	..	9 *
Fifth week																	
B.4	.	5	..	9	..	13	..	..	..	..	3	3	..	..	..	..	28
B 6	..	5	..	9	..	..	..	..	..	1	..	..	..	..	..	..	10
B.8	..	5	..	10	2	4	1	..	..	..	..	..	..	5 [6]	..	..	22
Sixth week																	
B 12 [4]	3	..	..	7	..	2	..	..	..	..	..	..	..	..	..	..	9
Seventh week																	
B.4		5		10	4	4			..	..	..	..	..	..	..	..	18
B.6		5	..	4	..	10	..	..	..	1	..	..	..	..	5	..	20
B.12 [4]	3	..		8	..	1	..	..	..	..	..	..	..	..	..	..	9
Ninth week																	
B.12 [4]	3	..	..	3	..	4	..	..	..	..	..	..	..	..	..	..	7
Eleventh week																	
B.12 [4]	3	..	..	2	2	2	..	..	..	..	..	..	..	5	..	..	11 [7]

[1] All doses given in mg; first, second, and third figures indicate mg of fractional nalorphine doses if increasing amounts were given at *ca* 20-minute intervals.

[2] If fractional doses were given, the highest total score was recorded. The dose(s) which produced the highest score is (are) in italics in the column " Nalorphine dose ".

[3] Case B.3 same as B.11 in group II.

[4] Case B.12 same as B.5 in group II.

[5] Case N.Y. 6 same as N.Y. 7 in group I of collateral project.

[6] Delirious.

[7] A.T. done 36 hours after last narcotic dose.

* Indicates that two A.T.s were done in this week.

Of the 65 routine allyl tests performed, two were done for patient H.12 and three for patient N.Y.5. As mentioned before, these five tests are excluded from the evaluation. The remaining 60 tests were distributed as follows: One, two, three, four, six, seven and eight tests each were done for three, five, two, three, one, one and two patients, respectively.

Of these 60 tests, 22 were done for seven cases in group I and 38 for ten cases in group II. As is seen in the right-hand columns of tables 3 and 9, physical dependence was demon-

TABLE 7

Point scores in screening allyl tests (S.A.T.) and in allyl tests (A.T.) during treatment with narcotic, recorded for patients in group II (morphine plus levallorphan)

Patient identification	Nalorphine dose [1]				Abstinence signs													Total score [2]
					PB	T	R	Y	La	Rh	P	G	My	Tr	Re	Em	Na	
Screening allyl test																		
B.1	..	3	5	*8*	9	2	..	..	..	..	..	..	..	..	..	..	..	11
B.2	..	3	5	*8*	..	..	..	..	..	..	..	..	..	..	..	..	3	3
B.5 [3]	..	*3*	5	*8*	6	..	..	..	..	..	..	..	..	..	..	..	..	6
B.7	..	3	*5*	8	1	..	..	..	..	..	1	..	..	..	..	..	..	2
B.9	..	3	5	*8*	..	..	..	..	..	..	1	..	..	..	..	..	..	1
B.11 [4]	..	*3*	5	..	4	1	..	..	..	..	..	..	..	..	..	..	..	5
B.13	..	*3*	5	..	10	..	..	..	..	..	..	..	..	..	..	..	..	10
N.Y.1	..	..	5	..	..	..	6	..	..	..	1	..	..	..	..	..	..	7
N.Y.2	..	3	*5*	..	4	..	..	..	..	..	..	..	..	..	..	..	..	4
N.Y.3	..	3	*5*	*8*	2	..	2	..	..	..	1	..	..	..	..	..	..	5
N.Y.5	1	3	*5*	..	3	4	2	..	..	..	..	..	3	..	5	..	..	17
H.11	..	3	*5*	..	7	..	..	..	..	..	..	..	..	..	..	..	..	7
First week																		
H.11	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0
Second week																		
B 5 [3]	..	..	5	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1
B.9	..	..	5	..	6	2	4	..	..	..	..	..	..	..	..	..	..	12
B.11 [4]	..	3	..	..	10	6	..	..	..	..	..	..	..	..	..	..	..	16
H 11	..	3	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..	3
Third week																		
B.1	..	..	5	..	10	2	..	..	..	..	1	..	..	..	..	..	..	13
B.2	..	..	5	..	4	4	2	..	..	..	..	..	..	..	..	..	..	10
B.7	..	..	5	..	9	6	5	..	..	..	..	..	..	..	..	..	..	20
B.11 [4]	..	3	..	..	5	1	..	..	..	..	..	..	..	..	..	..	..	6
N.Y.1	..	3	..	..	10	..	6	..	..	..	1	..	..	..	..	..	..	17
N.Y.2	..	..	5	..	8	..	2	..	..	1	1	..	3	3	5	..	3	26
N.Y.3	..	..	5	..	6	8	4	..	..	..	..	..	..	..	5	..	..	23
N.Y.5	1	2	..	..	8	4	2	..	..	..	..	..	..	..	..	..	..	14
H.11	..	3	..	..	..	..	7	..	..	..	..	..	..	..	..	..	..	7
Fourth week																		
B.5 [3]	..	..	5	..	9	..	1	..	..	..	1	..	..	..	..	..	..	11
B.9	..	..	5	..	6	1	..	..	..	..	..	..	..	..	..	..	..	7
B.11 [4]	..	3*	..	..	1	..	2*	..	..	..	..	..	..	..	..	..	..	3 *
	..	3*	..	..	..	..	4*	..	..	..	..	..	..	..	..	..	..	4 *
H.11	..	3	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	3
Fifth week																		
B.1	..	..	5	..	10	2	5	..	..	..	1	..	..	..	..	..	..	18
B.2	..	..	5	..	2	1	2	..	..	..	1	..	..	..	..	..	..	6
N.Y.1	1	2	..	..	10	..	4	..	..	..	1	..	..	..	5	5	3	28
N.Y.5	1	2	..	..	1	2	2	..	..	..	..	..	3	..	..	..	..	8
H 11	..	3	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2
Sixth week																		
B.5 [3]	..	..	5	..	10	..	..	..	..	..	..	..	..	..	..	..	..	10
B.9	..	..	5	..	10	1	2	..	..	..	..	..	..	..	..	..	..	13
B.11 [4]	..	3	..	..	10	..	..	..	..	..	..	..	..	..	..	..	..	10
H.11	..	3	..	..	5	1	4	..	..	..	..	..	..	..	..	..	..	10
Seventh week																		
B.1	..	..	5	..	10	..	3	..	..	..	1	..	..	..	..	..	..	14
B.2	..	..	5	..	5	3	4	..	..	..	..	3	3	..	..	..	..	18
B.11 [4]	..	3	..	..	5	2	1	..	..	..	..	..	..	..	..	..	..	8
N.Y.5	1	2	..	..	8	..	7	..	..	1	..	..	3	..	5	10	..	34
Eighth week																		
B.5 [3]	..	..	5	..	..	3	1	..	..	..	..	..	..	..	..	..	..	4
B.9	..	..	5	..	10	2	9	..	1	..	..	..	3	..	5	5	6	41
Ninth week																		
B.1	..	..	5	..	9	1	2	..	..	..	..	..	..	..	..	..	..	12
B.2	..	..	5	..	10	..	6	..	..	..	1	..	..	..	..	..	..	17
B.11 [4]	..	3	..	..	..	2	..	..	1	..	1	3	3	3	5	..	..	18
Tenth week																		
B.5 [3]	..	..	5	..	5	..	6	..	..	..	..	..	..	..	..	..	..	11
B.11 [4]	..	3	..	..	3	2	..	..	1	..	..	3	3	..	5	..	..	17
Twelfth week																		
B.5 [3]	..	..	5	..	10	..	3	..	..	..	..	..	..	..	..	..	..	13
Fourteenth week																		
B.5 [3]	..	..	5	..	2	..	1	..	..	..	..	..	..	..	..	..	..	3

[1] All doses given in mg; first, second, and third figure indicate mg of fractional nalorphine doses if increasing amounts were given at *ca* 20-minute intervals.
[2] If fractional doses were given, the highest total score was recorded. The dose(s) which produced the highest score is (are) in italics in the column " Nalorphine dose ".
[3] Case B.5 same as B. 12 in group I.
[4] Case B.11 same as B. 3 in group I.
* Indicates that two A.T.s were done in this week.

strated at some time during the observation period in all patients except case H.7 in the morphine group and cases B.5 and H.11 in the mixture group. Since patient H.7 had her last routine allyl test during the second week of treatment with small doses of morphine, the negative outcome of her last test has little significance. On the other hand, the negative outcome of the last allyl test of patients B.5 and H.11, which were done in the fourteenth and sixth weeks of treatment respectively, is certainly meaningful. Moreover, the average total dose of morphine administered up to the first score indicative of the development of physical dependence was almost 50% higher in the mixture group than in the group which received morphine alone.

Finally, if the average point scores calculated for treatment weeks in which three or more allyl tests were given and which are entered in tables 8 and 9 are amended by omitting cases H.12 and N.Y.5 and by transferring the scores for patient N.Y.6 in the screening and routine allyl tests to the fifth, seventh and eighth weeks, respectively, for the reasons given above, the following figures result:

	Group I (Morphine alone)	*Group II (Morphine-levallorphan)*
Average total point scores of screening allyl test	4	5.1
Routine allyl test during week 2	—	8
3	16.4	15.2
4	13.7	5.6
5	17.7	13.5
6	—	10.3
7	15.2	13.3
9	—	15.7

As is seen, the average total point scores of the routine allyl tests, calculated for the individual treatment weeks, are consistently higher in the morphine group than in the mixture group. These averages increase more rapidly and more markedly in the group of patients who received morphine alone. This becomes particularly evident during the fourth and fifth treatment weeks, but in the seventh week the average total point score for the morphine group is only slightly higher than for the mixture group. Again, these findings suggest that physical dependence develops sooner if the narcotic is given alone than if it is administered conjointly with the antagonist.

Cross-over Experiments

Development of tolerance. When patient D. F. (case B.3) was treated with morphine alone, his narcotic requirements, as compared with the first week, increased by 191% and 230% in the second and third weeks of treatment. On the other hand, when the same subject, after a medication-free interval of 11 months, was placed on morphine-levallorphan (case B.11) the percentage increase of his narcotic requirements in the corresponding weeks was only 63.4 and 102.4 and, during subsequent weeks of therapy, the percentage increase never exceeded 129.2 (sixth week), as may be seen from tables 2 and 3.

Similarly, when patient S. H. (case B.5) was treated with the morphine-levallorphan mixture, his weekly narcotic requirements never increased by more than 21.7% (fifth and sixth weeks); but when the same subject, after a medication-free interval of 7 months, was placed on morphine alone (case B.12) the percentage increase of his narcotic requirements was 111.7, 135.2 and 205.8 in the second, third and sixth weeks, respectively (See tables 2 and 3).

These findings indicate that patient D. F. developed rapidly marked tolerance when he was on morphine alone and tolerance of a far less degree when he was on the narcotic-antagonist combination. Furthermore, it is obvious that patient S. H. developed very little tolerance, if any, to morphine when the narcotic was given in combination with levallorphan, but definitive and marked tolerance when he was on morphine alone.

Development of physical dependence. When patient D. F. (case B.3) had received a total of 1,920 mg of morphine alone during a 24-day period (average daily dose 80 mg) his second routine allyl test was positive.[15] When the same subject, after the medication-free interval, was placed on morphine-levallorphan (case B.11) and after he had thus been given a total of 4,470 mg of morphine in the form of the mixture during a 42-day period (average daily dose 106.4 mg), his sixth routine allyl test was still negative.[16] However, the following test became positive [17] after 5,920 mg of morphine in the form of the combined medication had been administered during a 55-day period (average daily dose 107.6 mg).

Similarly, when patient S. H. (case B.5) had received a total of 6,585 mg of morphine in the form of the narcotic-antagonist combination during a 98-day period (average daily dose 67.2 mg), his seventh and last routine allyl test was still negative.[18] When the same subject, after the medication-free interval, was placed on morphine alone (case B.12) and after he had thus been given 5,690 mg of morphine during a 58-day period (average daily dose 98.1 mg) his eighth and last routine allyl test became clinically positive.[19] The total point score was only 11, but this low value can be explained by the fact that this allyl test was done 36 hours after administration of the last morphine dose.

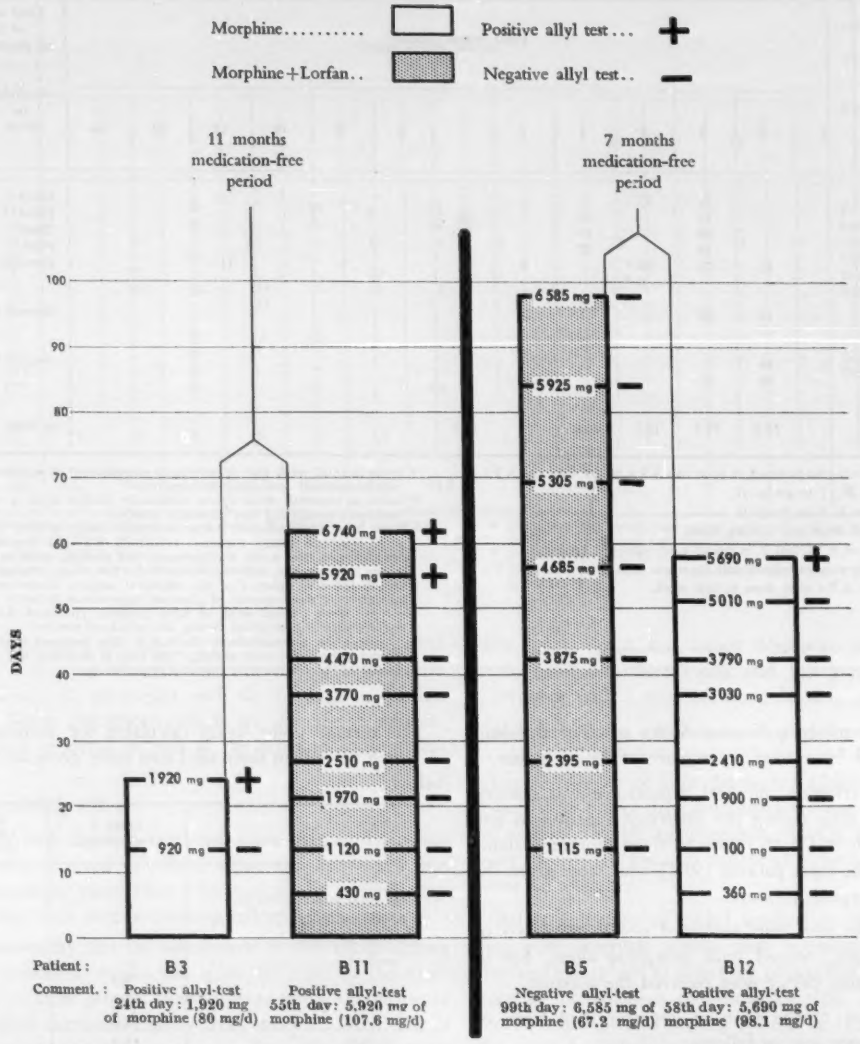
Chart I presents graphically the total doses of morphine (alone and in combination with levallorphan) which these two patients received up to the individual allyl tests during the courses of treatment carried out in a double-blind fashion. The chart also shows the outcome of these allyl tests. It is evident from these findings that the development of physical dependence is deferred in the same individuals if morphine is given conjointly with levallorphan.

[15] See entry in table 6, fourth week, and chart I.
[16] See entry in table 7, seventh week, and chart I.
[17] See entry in table 7, ninth week, and chart I.
[18] See entry in table 7, fourteenth week, and chart I.
[19] See entry in table 6, eleventh week, and chart I.

Remarks about notes 9 to 13: The periods of treatment up to the allyl test as indicated above and in the chart are given as total number of days on which drugs were actually administered. In tables 6 and 7 the time of performance of these tests is listed by weeks. Some minor gaps in drug administration account for the seeming differences between the data in the chart and the entries in the tables.

GRAPH I

Outcome of allyl tests in two patients receiving morphine alone and morphine plus levallorphan in cross-over experiments



After a medication-free period of 40 days, patient S. H. was again placed on morphine, this time in a non-blind fashion. During a 56-day period he received a total of 6,710 mg of the narcotic (average daily dose 119.8 mg). In contrast to the two previous courses, morphine was withheld up to 24 hours following the eight allyl tests administered during this third course of treatment. Although these tests, carried out 2 hours after the last morphine dose, were negative by the point scores obtained, withdrawal symptoms (dysphoria, diarrhoea, polyuria, perspiration, restlessness, etc.) frequently occurred several hours after completion of the tests. Since these symptoms always disappeared with the administration of the next morphine dose, there can be no doubt that the patient developed physical dependence.

Results in collateral project

Development of Physical Dependence

The total point scores for the signs indicative of physical dependence for each subject and each allyl test (screening and routine) are summarized in tables 11 (group I) and 12 (group II).

Seventy-two screening and routine allyl tests were done in the course of this study. All 15 screening tests performed were negative. Of the 57 routine allyl tests 25 were done for the seven cases in group I and 32 for the eight cases in group II. As is seen from tables 11 and 12, ten tests in the former group (40%) and 7 tests in the latter group (21.8%) were

TABLE 8

Summary of total scores in screening allyl tests (S.A.T.) and allyl tests (A.T.) during treatment with narcotic, recorded for patients in group I (morphine alone)[1]

Patient identification	S.A.T.	Point scores (weeks)													First score indicative of development of physical dependence	
		1	2	3	4	5	6	7	8	9	10	11	12	14	Occurring in week	Total M. S. dose up to that score (mg)
.3 [2]	1	..	..	15	18	..	..	..	..	..	..	..	..	..	Thrid [a]	920
B 4	7	..	..	18	..	28	..	18	..	..	..	..	..	..	Third	450
.6	1	..	..	20	..	10	..	20	..	..	..	..	..	..	Third	822
.8	6	..	..	10	..	22	..	..	..	..	..	..	..	..	Fifth	1 220
.12 [3]	4	..	12	13	14 • 9 •	..	9	9	..	7	..	11 [4]	..	..	Eleventh [b]	5 690
N.Y.6 [5]	11	..	14	20	..	..	..	..	..	..	..	..	..	..	Seventh [c]	1 524 [c]
H.7	5	5	10	..	..	..	..	..	..	..	..	..	..	..	>Second [d]	>210
H.12	7 [d]	..	20	27	..	..	..	..	..	..	..	..	..	..		
Average [6]	5.3	..	14.0	19.3	13.7	20.0	..	15.7	..	..	..	..	..	..	ca fifth	1 548.0

[1] Includes only patients who received at least two A.T.s (S.A.T. and one A.T.).
[2] Case B. 3 same as B. 11 in group II.
[3] Case B. 12 same as B. 5 in group II.
[4] A.T. done 36 hours after last narcotic dose.
[5] Case N.Y. 6 same as N.Y. Coll. 7 in group I of collateral project.
[6] Average point scores were calculated only for weeks with three or more A.T.s.
• Indicates that two A.T.s were done in this week.

[a] Score in third week just at arbitrarily chosen level of significance, but observers considered test clinically negative.
[b] Score in eleventh week below arbitrarily chosen level of significance, but observers considered test clinically positive.
[c] Score in second week just below arbitrarily chosen level of significance; but, since symptomatology included mydriasis, physical dependence probably developed in that week. Furthermore, this patient, prior to her admittance to the main project, had received M.S. for five weeks, during which time she was included in group I of the collateral project. Therefore the first score indicative of development of physical dependence actually occurred in the seventh week (second week of main project). The total M.S. dose includes the quantity she received during the collateral project.
[d] Patient showed mydriasis in the S.A.T. This suggests that some physical dependence was present initially. This case is therefore not included in discussion of development of physical dependence.

indicative of the presence of some degree of physical dependence, as judged by a total point score of 15 or higher.

By the same criterion, physical dependence was demonstrated at some time during the observation period in five of the seven patients (71.4%) who received morphine alone, and in four of the eight patients (50%) who were given the morphine-levallorphan mixture.

Conversely, the allyl tests remained negative in two of the patients (28.6%) treated with morphine alone, but in four of the patients (50%) who received the mixture.

The distribution of the time of appearance of signs of physical dependence was as follows:

Numbers of patients with first point score indicative of physical dependence

Group	*During treatment weeks*				
	1	*2*	*3*	*4*	*>5*
Group II (morphine-levallorphan) ...	0	0	2	2	4
Group I (morphine)	1	1	2	1	2

All these findings suggest that physical dependence develops more readily if morphine is given alone than if it is administered together with levallorphan.

The average point scores calculated for treatment weeks in which more than three allyl tests were given are correlated below:

	Group I (Morphine)	*Group II (Morphine-levallorphan)*
Average total point scores of:		
Screening allyl test	5.7	5.5
Routine allyl test during		
week 1	—	7.8
2	9.3	6
3	13.6	10.8
4	14.6	15.5
>5	13.5	9.6

As is seen, the average total point scores of the routine allyl tests, calculated for the individual treatment weeks, are higher in the morphine group than in the mixture group, with the exception of the fourth week. It is obvious that the average scores in the morphine group show a somewhat earlier tendency to rise than the average scores in the mixture group, and this may be interpreted as an indication of earlier development of physical dependence in the former group. Conversely, the somewhat delayed rise of the average scores in the mixture group may be interpreted as an indication that the addition of levallorphan to morphine delays the development of physical dependence.

TABLE 9

Summary of total scores in screening allyl tests (S.A.T.) and allyl tests (A.T.) during treatment with narcotic, recorded for patients in group II (morphine plus levallorphan)[1]

Patient identification	S.A.T.	Point scores (weeks)													First score indicative of development of physical dependence	
		1	2	3	4	5	6	7	8	9	10	11	12	14	Occurring in week	Total M.S. dose up to that score (mg)
B. 1	11	..	..	13	..	18	..	14	..	12	..	..	..	..	Fifth	860
B. 2	3	..	..	10	..	6	..	18	..	17	..	..	..	..	Seventh	2 260
B. 5 [2]	6	..	1	..	11	..	10	..	4	..	11	..	13	3	>Fourteenth	>6 585
B. 7	2	..	..	20	..	..	..	..	..	..	..	..	..	..	Third	291
B. 9	1	..	12	..	7	..	13	..	41	..	..	..	..	..	Eighth	5 135
B. 11 [3]	5	..	16 [a]	6	3* 4*	..	10	8	..	18	17	..	..	..	Ninth	5 920
N. Y. 1	7	..	..	17	..	28	..	..	..	..	..	..	..	..	Third	234
N. Y. 2	4	..	..	26	..	..	..	..	..	..	..	..	..	..	Third	774
N. Y. 3	5	..	..	23	..	..	..	..	..	..	..	..	..	..	Third	450
N. Y. 5	17 [b]	..	..	14	..	8	..	34	..	..	..	..	..	..	[b]	
H. 11	7	0	3	7	3	2	10	..	..	..	..	..	..	..	>Sixth	>470
Average	6.2	..	8.0	15.1	5.6	12.4	10.8	18.5	..	15.7	..	..	..	..	*ca* sixth	2 297.9

[1] Includes only patients who received at least two A.T.s (S.A.T. and one A.T.)
[2] Case B. 5 same as B. 12 in group I.
[3] Case B. 11 same as B. 3 in group I.
* Indicates that two A.T.s were done in this week.
[a] Score in second week just above arbitrarily chosen level of significance, but observers considered test clinically negative.
[b] Patient's score in the S.A.T. suggests the presence of physical dependence. This case is therefore not included in discussion of development of physical dependence.

The assessment of the presence or absence of withdrawal symptoms following abrupt discontinuance of medication was not always in agreement with the findings in the last allyl test. These differences, which are difficult to explain, are described in detail in one of the separate communications (6).

Occurrence of Side Effects

Euphoria and dizziness occurred more frequently in the patients who received morphine alone and drowsiness and constipation were more often observed in the patients who were treated with the morphine-levallorphan mixture.

It is noteworthy that the distribution of side effects during the four treatment weeks was quite different in the morphine and mixture groups. In the former group the incidence of side effects decreased rapidly from week to week, but in the mixture group the occurrence of reactions was more evenly distributed throughout the treatment period. These observations may suggest that tolerance to the side effects of morphine develops more slowly if the narcotic is combined with levallorphan, but the possibility cannot be excluded that the incidence of side effects from levallorphan increases with continued administration of the antagonist.

Summary and conclusions

Morphine sulfate and a 50 to 1 morphine-levallorphan (Lorphan) tartrate mixture were administered under code designations in a double-blind fashion to 19 patients with chronic pain, most of whom suffered from cancer. Included were cases from three centres — viz. Berlin, Hamburg and New York. With but minor deviations all patients were treated and all observations and interpretations made in accordance with a protocol formulated in advance.

Morphine doses, which were adjusted throughout the study to the smallest which gave adequate relief, were repeated when recurrence of pain demanded additional medication. A careful record of drug administration was kept. In addition to weekly narcotic requirements, weekly pain relief scores were determined for each patient as a check on the development of tolerance.

Before initiation of coded medication and in general at two-week intervals during such medication, each patient received nalorphine to detect the presence of physical dependence by precipitation of abstinence signs (allyl test). Point scores, based on the scoring system of Himmelsbach, were determined in these tests as well as in placebo tests which were given under the same conditions in alternate weeks.

Two patients in the Berlin centre were admitted to the study twice. As became evident after decoding the medications, one of these patients was given morphine on his first admission and the morphine-levallorphan mixture on his following admission, and in the second case it was the other way around. Thus, different medications were used, merely by chance, in both instances on the two occasions and these patients therefore served as their own controls. Since these subjects were considered as separate cases during their two courses of treatment, the entire case material comprised 21 cases, of which 9 were given morphine alone (group I) and 12 the morphine-levallorphan mixture (group II).

TABLE 10

Summary of scores in placebo tests, recorded of patients in group I (morphine alone) and group II (morphine plus levallorphan)

Test	Number of patients	Signs looked for [1]												Average score per patient
		BP	T	R	V	La	Rh	P	G	My	Tr	Re	Em	Na	
First	19	13/56	9/30	11/31	..	..	..	2/2	..	..	..	..	..	..	6.3
Second	12	10/38	6/16	8/17	..	..	..	..	..	..	..	..	..	..	5.9
Third	8	5/27	5/15	5/11	..	..	..	..	..	..	..	..	..	..	6.6
Fourth	5	4/28	2/5	3/6	..	..	..	..	..	..	..	..	..	..	7.8
Fifth	1	1/10	..	..	..	..	..	..	..	..	..	..	..	..	10.0
Sixth	1	..	1/3	1/3	..	..	..	..	..	..	..	..	..	..	6.0
Seventh	1	1/1	..	..	..	..	..	..	..	..	..	..	..	..	1.0
TOTAL...	47	..	..	..	..	..	..	..	..	..	..	..	..	..	6.4 (Aver.)

[1] First figure indicates number of patients in whom sign was observed; the second figure is the total score for that sign for all patients. Two dots indicate that the sign was not observed.

TABLE 11

Summary of total scores in screening allyl tests (S.A.T.) and allyl tests (A.T) during treatment with narcotic, recorded for patients in group I of the collateral project (morphine alone)

Patient identification	Initials	S. A. T.	Point scores (weeks)									First score indicative of development of physical dependence	
			1	2	3	4	5	6	7	8	9	Occurring in week	Total M.S. dose up to that score (mg)
N. Y. Coll. 4	V. C.	4 (3) [1]	15 (3) [1]	11 (3) [1]	15 (6) [1]	15 (6) [1]	..	..	..	..	..	First	180
N. Y. Coll. 5	M. R.	10 (1-3-5)	..	12 (3)	19 (3)	20 (6)	24 (6) [1]	..	..	..	..	Third	468
N. Y. Coll. 7 [2]	McS. M.	10 (3)	6 (3)	4 (3)	12 (6)	.	11 (6)	..	..	..	..	>Fifth	>760
N. Y. Coll. 8	B. H.	3 (3)	..	3 (3)	13 (3)	21 (6)	..	..	..	..	..	Fourth	558
N. Y. Coll. 10	A. G.	4 (3)	..	15 (3)	18 (3)	8 (6)	11 (6)	..	..	..	..	Second	192
N. Y. Coll. 14	J. J.	9 (3)	..	10 (3)	16 (6)	..	..	..	..	..	..	Third	360
N. Y. Coll. 15	E. H.	0 (3)	..	10 (3)	2 (3)	9 (6)	8 (6)	..	..	..	..	>Fifth	>1 492
Average [3]	.....	5.7	..	9.3	13.6	14.6	13.5	..	..	..	..	*ca* fourth	570.0

[1] All figures in parentheses are mg of nalorphine used in the individual S.A.T.s and A.T.s. Three figures in parentheses indicate that fractional doses were given. The dose productive of the highest score is in italics, and the score listed is the highest which was recorded.

[2] Case N.Y.Coll. 7 same as N.Y. 6 in group I of main project.

[3] Average point scores were calculated only for weeks with four or more A.T.s.

TABLE 12

Summary of total scores in screening allyl tests (S.A.T.) and allyl tests (A.T.) during treatment with narcotic, recorded for patients in group II of the collateral project (morphine plus levallorphan)

Patient identification	Initials	S. A. T.	Point scores (weeks)									First score indicative of development of physical dependence	
			1	2	3	4	5	6	7	8	9	Occurring in week	Total M.S. dose up to that score (mg)
N. Y. Coll. 1	H. K.	2 (3) [1]	12 (3) [1]	12 (3) [1]	..	13 (6) [1]	9 (6) [1]	..	..	..	..	>Fifth	>984
N. Y. Coll. 2	K. V.	8 (3)	11 (3)	5 (3)	..	14 (6)	8 (6)	..	..	..	..	>Fifth	>800
N. Y. Coll. 3	G. O.	3 (3)	6 (3)	5 (3)	12 (6) [1]	17 (6)	..	..	..	..	..	Fourth	936
N. Y. Coll. 6	B. M.	0 (3)	4 (3)	5 (3)	15 (3)	16 (6)	..	..	..	..	..	Third	472
N. Y. Coll. 9	K. N.	9 (3)	6 (3)	..	1 (3)	7 (6)	5 (6)	..	..	..	..	>Fifth	>656
N. Y. Coll. 11	A. T.	6 (3)	..	8 (3)	9 (3)	27 (6)	..	..	..	..	..	Fourth	452
N. Y. Coll. 12	F. G.	2 (3)	..	3 (3)	2 (3)	12 (6)	12 (6)	..	..	..	..	>Fifth	>770
N. Y. Coll. 13	C. H.	14 (3)	..	4 (3)	26 (3)	18 (6)	14 (6)	..	15 (6) [1]	..	..	Third	264
Average [2]	.....	5.5	7.8	6.0	10.8	15.5	9 6	..	..	..	..	*ca* fifth	666.8

[1] All figures in parentheses are mg of nalorphine used in the individual S.A.T.s and A.T.s.

[2] Average point scores were calculated only for weeks with five or more A.T.s.

The averages of individual morphine doses, both finally and at the end of 4 weeks of drug administration, were considerably higher in group I than in group II. The average narcotic consumption was 104.6% greater in the fourth than in the first week for morphine, but only 17.8% greater for the morphine-levallorphan mixture.

Tolerance was judged to be definitely evident, both after 4 weeks of narcotic medication and at the end of treatment, in a much higher percentage of patients in group I than in group II. Conversely, tolerance was considered to be absent at these times in a considerably lower percentage of patients in group I than in group II. All these findings strongly suggest that the development of tolerance is deferred and/or attenuated by combining morphine with levallorphan.

Pain relief scores fluctuated considerably in some patients, but on the whole were fairly consistent with the estimate of tolerance.

Physical dependence was detectable by the allyl test sooner or later in almost all patients in both groups. However, the average total dose of morphine administered up to the first score indicative of the development of physical dependence was almost 50% higher for group II than for group I. Moreover, the average total point scores of the allyl tests increased more rapidly and markedly in group I than in group II. This is particularly evident in the fourth and fifth treatment weeks. All these findings suggest that physical dependence develops more readily if morphine is administered alone than if it is given combined with levallorphan.

In the cross-over experiments on two Berlin patients tolerance developed rapidly and markedly when the medication was morphine alone and to a far less degree (hardly at all in one patient) when the medication was the morphine-levallorphan mixture. One patient showed evidence of physical dependence after receiving 1.92 gm of morphine over a 24-day period and no sign of physical dependence after 4.47 gm of morphine as mixture in a 42-day period. Similarly, the second patient developed physical dependence after 5.69 gm of morphine in 58 days, but his allyl test was still negative after 6.58 gm of morphine as mixture in 98 days. Thus, these cross-over experiments corroborate the deferment or attenuation of tolerance and physical dependence when morphine is combined with levallorphan.

Furthermore, in the New York centre, morphine and the morphine-levallorphan mixture were administered in a double-blind fashion to 15 patients, most of whom did not require narcotic medication. The dose of morphine was standardized and in general treatment was continued for 4 weeks (N.Y. collateral project). Seven patients were given morphine alone (group I) and 8 the narcotic-antagonist combination (group II).

Before initiation of coded medication and approximately at two-week intervals during such medication, each patient received nalorphine to detect the presence of physical dependence, just as in the main project.

Signs of physical dependence appeared somewhat earlier in group I than in group II. Moreover, the average total point scores of the allyl tests in the former showed a slightly earlier tendency to rise than in the latter. These findings also suggest that physical dependence develops somewhat sooner if morphine is administered alone than if it is given conjointly with levallorphan.

In the morphine group the incidence of side effects decreased rapidly from week to week, but in the mixture group the occurrence of reactions was quite evenly distributed throughout the period of treatment. One possible explanation for these observations is that the addition of levallorphan defers the development of tolerance to the side effects of morphine.

Considering all data presented, there may be an advantage in the combination of morphine with levallorphan. However, the addition of levallorphan seems to defer the emergence of tolerance and physical dependence to morphine for a comparatively short period.

* * *

Addendum

Since formulating this report we have learned from Drs. Deneau and Seevers through personal communication that they studied the physical dependence liability of mixtures of morphine and levallorphan in monkeys. The animals received subcutaneously 5 mg/kg of the narcotic in combination with different amounts of the antagonist q. 4 hours for 31 days. The ratios of morphine to levallorphan used were 2.5 to 1, 10 to 1 and 40 to 1. Upon withdrawal, abstinence syndromes occurred; but in each case these were less severe than is usually observed when even less morphine is given alone at less frequent intervals. These workers concluded that levallorphan definitely reduced the degree of physical dependence which otherwise would have developed to morphine. These findings in monkeys are in agreement with our observations in man that physical dependence may develop somewhat sooner if morphine is administered alone than if it is given together with levallorphan. When Drs. Deneau and Seevers administered morphine and levallorphan in a 1 : 1 ratio to monkeys — the animals received 5 mg/kg of both drugs q. four hours — development of physical dependence was completely suppressed.

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Some applications of paper chromatography in the detection of opium alkaloids

By George R. Nakamura

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The proximity of this laboratory to sources of illicit narcotics in the Far East has afforded this organization a great deal of experience in examining and identifying these dangerous drugs in various forms.

Since heroin is cheaply converted from morphine, resulting in much increased potency, it is the most popular underground vehicle in the narcotics trade in the Far East, if not throughout the world. This laboratory has standardized its analytical procedure so that at least three principal criteria are satisfied before a conclusion of positive identification for heroin is rendered. The criteria are that the classic colour tests (1) of Mecke, Marquis & Freude give characteristic reactions for heroin; that the characteristic ultra-violet absorption spectra of heroin (2) are demonstrated by spectrophotometry; and that the characteristic crystalline derivative of heroin (3) is obtained in reaction with platinic chloride. In addition to these criteria, or in substitution for the second and third criteria, particularly when the heroin sample contains interfering substances, chromatographic detection is attempted.

Interfering substances present in heroin samples make spectrophotometric and platinate derivative determinations difficult. Paper chromatography has proven to be a simple and effective tool for the separation of a mixture of opium alkaloids and other drugs, tobacco products or various nondescript substances occurring in narcotic examination. Some of the latest applications of chromatographic methods for forensic studies, including the detection of dangerous drugs, have been reviewed by McBay (4).

The procedure employed by this laboratory for the detection of opium alkaloids has been essentially the same as those described by Mannering *et al* (5) and Dobro & Kusafuka (6). The ascending type of chromatography was performed in a cylindrical jar, 46 cm in diameter, fitted with a ground-glass lid. This tank accommodated a 40 sq cm sheet of Toyo Roshi No. 51 paper, rolled and stapled in such a manner that the edges did not touch each other.

Samples were applied onto a base line of the chromatogram by the use of capillary pipettes which were made from clean glass tubing and disposed of after each use. One of the solvent mixtures found most efficient by Mannering *et al* (5) and standardized by this laboratory for separating a mixture of heroin, morphine, codeine and other opium alkaloids consisted of 10 parts of 1-butanol, 5 parts of water and 1 part of glacial acetic acid. The top layer was used as the working solvent, and the lower layer was used to saturate the atmosphere.

The solvent mixture was allowed to irrigate the chromatogram overnight for eighteen hours. The paper was then dried in the open air and sprayed with potassium iodoplatinate reagent. The violet spot corresponding to the position of standard heroin was removed from the chromatogram, wetted with saturated sodium bicarbonate solution and eluted by extraction with chloroform. The chloroform extract was dried and re-dissolved in acidic or alcoholic solution for ultra-violet spectra determination or the colour tests, or both.

While the iodoplatinate reagent served as a sensitive tool to probe for opium alkaloids on the chromatogram, it had limited use in identification inasmuch as some other compounds, including non-alkaloids, also gave positive reactions. Various substances which are of interest in forensic examination were selected at random and tested for their reactions with the iodoplatinate reagent. These compounds were chromatographed under standard conditions and then sprayed with iodoplatinate. Results, presented in table 1, made it apparent that only a negative reaction could be used as a basis for conclusion.

Heroin and Procaine Mixture

Occasionally illicit heroin powder submitted to this laboratory was contained in used penicillin vials. Contamination of penicillin or penicillin-procaine had been noted in such heroin samples by this laboratory. When unusually large amounts of procaine were found, their presence was attributed to adulteration as an analgesic. Inasmuch as procaine absorbed ultra-violet light with much greater sensitivity than heroin, its interference in ultra-violet spectra determination of heroin was appreciable. This laboratory employed paper chromatography as a method (7) for separating procaine from heroin, using the standard solvent mixture containing 10 : 5 : 1 l-butanol, water and acetic acid resolved heroin and procaine. A butanol solvent containing ammonia proved to separate heroin and procaine even better, but the alkaline medium caused heroin to de-acetylate partially to morphine, resulting in two separate spots. The respective spots were removed and eluted under standard conditions and examined by spectrophotometry and colour tests.

TABLE 1

Reactions of iodoplatinate reagent with chromatographed compounds

Solvent mixture: l-butanol 10, acetic acid 1, and water 5

Positive reacting compounds

	Colour	Typical Rf *		Colour	Typical Rf *
Aminophylline	Light grey	.10	Nicotine	Blue	.49
Aminopyrine	Violet	.80	Papavarine	Violet	.74
Amodiaquin	Purple	.55	Pentolinium	Purple	.65
Amphetamine	Blue	.68	Primaquine	Purple	.76
Atropine	Violet	.62	Procaine	Purple	.56
Brucine	Blue	.52	Promazine	Purple	.76
Choline	Blue	.10	Promethazine	Violet	.79
Chlocyclizine	Violet	.75	Quinidine	Violet	.79
Chorpheniramine	Blue	.76	Quinine	Violet	.79
Chloroquine	Blue	.52	Strychnine	Violet	.55
Chlorpromazine	Purple	.78	Tetracaine	Purple	.78
Cocaine	Violet	.54	Thiamine	Blue	.11
Diacetylmorphine	Violet	.62	Thonzylamine	Purple	.65
Dimenhyrinate	Violet	.79	Thorazine	Purple	.78
Doxylamine	Purple	.74	Tolazoline	Purple	.58
Homatropine	Blue	.54	Transentine ®	Violet	.80
Methimazole	Purple	.77	Trimeprazine	Purple	.84
Morphine	Blue	.41	Tripelennamine	Violet	.75
Narcotine	Violet	.72	Yohimbine	Purplish pink	.66

* The Rfs of these compounds do not represent values which are absolute, but values which are relative to each other.

Negative reacting compounds *

Acetazolamide	Dextrose	Lactose	Phenylbutazone
Acetylsalicylic acid	Dibucaine	Liothyronine	Pipradol
Amobarbital	Diethylstibestrol	Marihuana	Prednisone
Ascorbic acid	Digoxin	Meclizine	Prednisolone
Antipyrene	Digitoxin	Menadione	Progesterone
Barbital	Diphenylhydantoin	Methanamine mandelate	Propadrine
Belladonna	Disulfiram	Methylhexabital	Reserpine
Benzocaine	Ephedrine	Methyltestosterone	Riboflavin
Bishydroxycourmarin	Ergonovine	Mephenesin	Rutin
Bromisovalum	Ergotamine	Meprobamate	Saccharin
Caffeine	Ethinamate	Menadione	Secorbarbital
Cantharidin	Ethisterone	Nicotinic acid	Streptomycin
Cascara sagrada	Glucoronic acid	Nitrofurantoin	Sulfisoxazole
Cholesterol	Glutethimide	Penicillin	Tocopherol
Chlorthiazide	Hydralazine	Phenobarbital	Wafarin
Colchicine	Isoniazid	Phenol	Zoxazolamine

* Yellow and brown colour reactions were considered negative.

Penicillin did not interfere with heroin in any of the three criteria determinations. Its presence was, however, detected by ultra-violet determination in hot acetate buffer, pH 4.6 (8). The absorption maximum peak was at 322 millicrons.

Tobacco and Heroin Mixture

Lately, many cigarette samples which have been examined in this laboratory have shown no visible trace of powder on the tobacco fragments, but have rendered positive reactions with the three colour tests. Hitherto, the occurrence of heroin powder was apparent enough, so that it could be shaken free from the tobacco.

The presence of nicotine and a large amount of non-specific substances found in the aqueous extract of tobacco caused troublesome interferences in the identification of heroin. Heroin and nicotine were separated by paper chromatography under standard conditions. To keep the brown-coloured material at a minimum in the extract, a mild extraction procedure was used. The tobacco fragments were placed in a fluted filter paper and water was allowed to run rapidly through the fragments and paper. The filtrate was collected, saturated with sodium bicarbonate and extracted with 9 : 1 chloroform-ethanol mixture. The extract was then concentrated for chromatographic application.

Iodoplatinate spray reagent gave a bluish coloured spot for nicotine at a Rf position on the chromatogram close to that for morphine (table 1). However, nicotine was differentiated from morphine by colour tests and ultra-violet spectrophotometry. Heroin stained violet with iodoplatinate and moved more rapidly than nicotine in this particular solvent mixture. For identification, the heroin spot was eluted and examined.

A rapid micro-filtration technique was employed when heroin was mixed with a small amount of tobacco fragments or other non-specific debris. An equal amount of water was added to the fragments contained in a test tube or an evaporating dish. A small cotton piece was placed in the mixture. The tip of a medicine dropper was pressed into the cotton and the clear liquid was drawn into the dropper pipette. This technique proved to be useful when a small amount of liquid was required to be filtered rapidly. The clear filtrate was concentrated or used *per se* for chromatographic applications.

" Codenon "

A liquid product contained in sealed ampoules and labelled with the trade mark " Codenon " was submitted to this laboratory for analysis. The user declared that the product was purchased from a pharmacy in Korea. Chromatographic examination showed that a sample of " Codenon " could be resolved into two iodoplatinate positive components with Rf values corresponding to papaverine and heroin standards respectively. When the spots were eluted and subjected to spectrophotometric examination and the colour tests, the presence of papaverine and heroin was confirmed. In another case, a batch of ampoules labelled " Codenon " was submitted to this laboratory for analysis; the liquid content of these ampoules was found to contain morphine as the only active principal.

Estimation of Morphine and Codeine by Paper Chromatography

In March 1959, this laboratory received eight compressed bars which resembled crude soaps wrapped in cellophane and with the trade mark " 999 " on both the bars and the wrappings. These bars were purported to have been shipped from or through Hong Kong to Japan through underground channels. The courier bearing these bars was intercepted by armed forces investigators at Yokota Air Base, Japan.

An analytical method using paper chromatography showed that these bars contained an average of 85% morphine and 7% codeine (estimated as free bases). The procedure for the separation and estimation of morphine and codeine was adapted from Knight's procedure (9) for the micro-analyses of purine bases and pyrimidine nucleotides using paper chromatography. The solvent mixture used for the best possible separation of morphine and codeine was that formulated by Asahina & Ono (10). It consisted of 50 parts of l-butanol, 15 parts of water, and 9 parts of 28% ammonia. The chromatogram was scanned for morphine and codeine spots with a germicidal lamp equipped with a filter (peak at 2,537 angstrom units) contained in an ultra-violet light box assembly built for the U.S. Army by the Sirchie Fingerprint Laboratory, U.S.A., described as electric light assembly MX-1291/PAQ. The chromatogram spots were removed and eluted with 3 ml of 0.1-N hydrochloric acid. The paper used was Toyo Roshi No. 51, manufactured by a Tokyo firm of the same name, which gave the same average blank reading, if not slightly lower, as Whatman No. 1.

Inasmuch as morphine and codeine have comparatively weaker ultra-violet absorption than purines and pyrimidines at their respective maxima, this adaption method suffered by comparison by having a lower sensitivity range. The accuracy for this chromatographic analysis for morphine and codeine was in the range of 100 to 350 microgrammes (figure 1) in which a linear curve was obtained for each alkaloid under standard conditions. In this range, 96% to 98% recovery could be obtained for chromatographed morphine and codeine. Asahina & Ono (10) described a paper chromatography method by which the absorbance of morphine spots on chromatogram strips was measured directly in a specially devised accessory for the Beckman DU spectrophotometer. They obtained readings in 10 to 60 microgramme range for the determination of chromatographed morphine. Investigation is being conducted in this laboratory for further refinements of the method, using paper chromatography and ultra-violet spectrophotometry for the rapid separation and estimation of morphine and codeine.

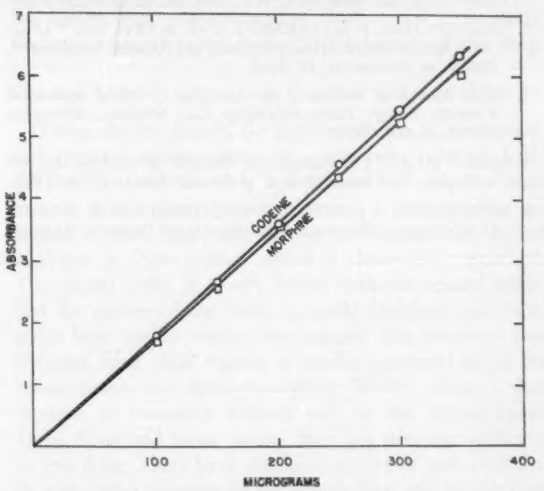

FIGURE 1

The standard curve plotted by relating the absorbance of chromatographed morphine and codeine to a concentration range of 100 to 350 microgrammes. The curve is linear for both alkaloids in this range under standard analytical conditions.

Detection of Morphine in Urine Stains

Following the modified purview of military laws, urine specimens for narcotic examination could no longer be collected from suspect individuals without their consent. Thus, this laboratory received undershorts and trousers bearing urine stains presumably of the suspect users. The urine stains from the garments were subjected to aqueous or dilute hydrochloric acid extraction and then the extracts were chromatographed according to the procedure of Mannering

et al (5) for the detection of opium alkaloids. In addition, the iodoplatinate positive spots removed from the chromatograms were examined by ultra-violet spectrophotometry as well as by colour tests.

While about thirty-two pairs of shorts have been examined to date, three pairs were demonstrated to contain morphine in urine stains. The amount found was estimated to be 100 to 250 microgrammes in each urine stain. As may be surmised, these positive tests for morphine were obtained where the concentration of urine stain was high. In each of the three cases, the presence of morphine was confirmed by ultra-violet spectral curve study. In one case, the stains from three pairs of shorts belonging to an individual suspect were combined to obtain positive results.

Summary

This paper describes a few experiences in which the paper chromatographic method was applied to the separation of opium alkaloids and certain non-specific substances in mixtures. The most common mixtures examined in this laboratory have been heroin in tobacco fragments and in procaine mixtures. Various compounds of forensic interest were chromatographed and tested with potassium iodoplatinate reagent for specificity study. Results are presented in table 1. Heroin has also been detected by paper chromatography in liquid samples contained in ampoules labelled " Codenon ". Paper chromatographic techniques were applied to the estimation of morphine and codeine components of a compressed bar. Morphine has been detected in urine stains found on men's shorts by the use of paper chromatography.

Acknowledgement

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The United Nations and the illicit traffic in narcotic drugs

Every country has customers for the illicit traffic. In some parts of the world the favoured drug may be opium; in others, coca leaf, and elsewhere a manufactured drug like morphine, diacetylmorphine (heroin) or cocaine. In some countries, the misuse of drugs is not widespread; in others there is deep-rooted addiction affecting many segments of society. No country can consider itself safe, as a " victim " or " transit " country, from the activities of domestic or international drug traffickers. Whatever the drug involved, illicit production or manufacture, if not suppressed, sooner or later spreads in widening circles and creates new victims. Narcotic drugs can be transported so easily, especially the " white drugs " such as morphine, diacetylmorphine and cocaine, and the incentive to smuggle is so great that with the best of intentions and the utmost effort, a country needs some international co-operation to achieve satisfactory control. When checked in one country, traffickers move to other bases of operation and develop new routes, or the traffic may be transferred from one drug to another, perhaps a more potent one.

There is no uniform pattern of drug trafficking, but essentially the traffic is supplied from clandestine sources and increasingly tends to have wide international ramifications. Attempts have been made to estimate the extent of the traffic in drugs, but there are inherent difficulties, particularly in the process of estimating the quantities of drugs flowing into the illicit traffic on the basis of actual seizures reported by national enforcement authorities. Enforcement officers are wont to regard seizures of drugs as constituting at best only 20 per cent of the actual traffic, and normally not more than 10 per cent. However, such assumptions might be misleading, as it is impossible to gauge the effects of several factors involved — e.g., the efficiency of national enforcement authorities, the activities and ingenuity of traffickers, the size of the illicit demand, etc. — and in any case the situation is different with different kinds of drugs. At times, investigations are carried out for a number of years before conclusion of the case. Often, reports are late and at times incomplete. Despite several gaps in the total picture of the illicit traffic, it may be asserted that the large quantities in individual seizures that continue to be reported indicate that the flow of the traffic in opium and the opiates, cocaine and cannabis, remains at a high level.

The illicit traffic in drugs is many-sided and complex: traffickers are known to operate several lines of drug traffic and often engage in other forms of criminal activity. In several cases reported to international bodies it has been shown that close links exist between the drug traffic and currency counterfeiting, the white-slave trade, the traffic in precious metals and stones, etc. Growing boldness in this form of lawlessness is seen in the several reports of armed resistance by traffickers. In a number of important investigations jointly carried out by authorities of different countries, international gangs or " rings " have been tracked down at the risk of great danger to the agents making the investigations.

The main drugs in the illicit traffic, at present, are opium and the opiates (crude morphine and diacetylmorphine), cocaine and cannabis. The traffic in opium and the opiates is an elaborate affair: here the raw material, opium, the conversion process into morphine or the finished product diacetylmorphine (heroin), and the addict consumer are linked by a complicated chain of organization which stretches across continents. This type of trafficking has wide international ramifications; it is well organized and well financed; all available methods of transport are used. In recent years it has been observed that traffickers appear to prefer converting opium into crude morphine close to the areas where the opium poppy grows to facilitate transport of the drug.

Opiates

During the last decade, the heaviest seizures of raw opium and prepared opium, dross, etc., have been reported from the Far East and the Near and Middle East. Opium from sources within these regions supports a large number of addicts in their habit, and there is still considerable opium addiction in these regions, which is clandestinely practised. The opium traffic is closely linked with the opiates traffic, and the centres of the traffic in crude morphine and morphine base also lie within these regions. The morphine base obtained from these regions is usually converted along the transit routes into diacetylmorphine (heroin) which is then directed to consumer markets such as the United States, Hong Kong and Japan, where there is a persistent addiction to this drug. There have also been reports of such addiction in some other countries of the Middle East and the Far East.

As an illustration of the highly organized nature of the traffic in the opiates, reference may be made to a case reported by the Governments of Italy, Switzerland and the United States of America which resulted in the break-up of an international gang after months of patient investigation. In July 1957, Swiss authorities arrested Mehmet Hattatoglu, a Turk, Enzo Berti, an Italian, and three Swiss: Otto Hermann, Hans Schlegel and Joseph Kaiser; four Swiss women were also arrested as accomplices. Investigations carried out revealed that at least 35 kg of morphine base were smuggled to Milan from Istanbul; the quantity brought which escaped detection was probably very much greater. The contraband was smuggled into Switzerland in suitcases with double bottoms by Hermann, Kaiser and Schlegel, who made the journey mostly

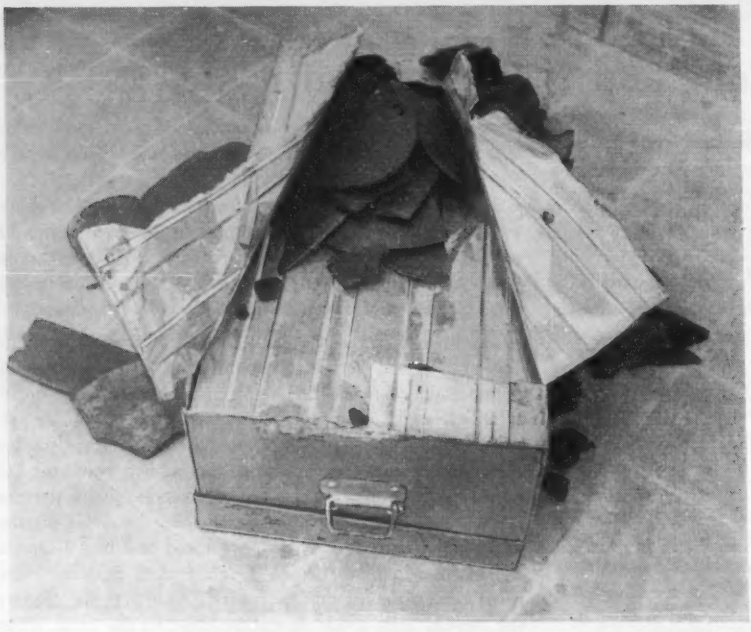

FIGURE 1

Opium concealed in the false bottom of a trunk

by aeroplane. Women companions were engaged in Zurich on repeated occasions; tickets, daily allowances and all expenses were paid; and the above-mentioned suitcases provided. They must have carried 4 to 5 kg at a time to Milan. There the morphine base was delivered to "Drs." Gamba and Berti, both well-known traffickers with a long list of crimes attributed to them. According to statements made by the arrested persons, the morphine base was converted into diacetylmorphine in the laboratory of "Dr." Gamba; Hattatoglu was the supplier; the three Swiss acted as intermediaries and carriers; and the Gamba-Berti group converted the morphine base into diacetylmorphine and also acted as financiers. This group was reported to have sold diacetylmorphine in successive deliveries to another group of traffickers headed by Francesco Saverino and Francesco Pirico, both of Milan, who arranged to have it despatched via Genoa to the United States. In August 1957, undercover operations carried out jointly by national enforcement officers of three countries led to the arrest of a further three Italian traffickers and the seizure of a kilogramme of diacetylmorphine. One of them, Amando Fiume, admitted having previously bought narcotics from Enzo Berti at Milan. The diacetylmorphine seized was part of the last lot produced by the Berti gang and sold to an unidentified French buyer. Italian police later arrested three more Italian traffickers and a French trafficker, Augustin Giraud, known as "le Grand Giraud", alleged to be the French source. Paraphernalia for counterfeiting French money and various firearms and burglary tools were found.

Cocaine

The cocaine traffic at present is significant mainly in South America, but recent information indicates that it spreads to other parts of the world. There is a traffic in coca leaves for chewing involving mainly Peru, Bolivia, Argentina and Chile. But at the same time there is an extensive traffic in cocaine paste in several countries of the region, and clandestine laboratories for the manufacture of cocaine are reported to be widespread. In 1957 and 1958, the Government of Brazil informed the Narcotics Commission of the United Nations that the cocaine traffic in South America had reached dangerous proportions. There were several small clandestine laboratories producing cocaine in the Brazilian state of Matto Grosso, but the bulk of the traffic appeared to be supplied by clandestine manufacture in Peru and Bolivia. The drug was generally smuggled into Brazil by air via Corumba and Aquidauana, where it was sent to the big cities, principally São Paulo and Rio de Janeiro. The cocaine traffic is also recently reported to have an increasing market particularly in the United States, with Cuba and Mexico as transit countries. This international traffic presents the usual features of organized rings operating from bases in several countries, and here is an illustrative case. Early in the morning of 23 July 1958, U.S. enforcement authorities were informed from Mexico City that one Olga Martínez was *en route* by air to Chicago with a quantity of cocaine in her possession which was intended for delivery to Julio Padilla of New York City, a well-known cocaine trafficker. Olga Martínez was met by agents on arrival and searched, with negative results. At a later date, however, she asserted that she had been carrying cocaine at the time of the search, but had ingeniously concealed a small package behind a radiator in the search room, and had managed to hide a large package by rolling it in her underclothes when she undressed, recovering the cocaine when she re-dressed, and ultimately delivering it in New York. Investi-

FIGURE 2
Opium concealed in crates

gations jointly carried out by enforcement officers of three countries disclosed that she and a male friend were closely connected with Antonio Botana and Arnaldo Barona, well-known Cuban traffickers who lived in Mexico. This information, with photographs, telephone numbers and addresses, was placed in the hands of the Federal Judicial Police in Mexico City. Soon the identity of the courier, who had made frequent trips smuggling cocaine from Peru to Mexico, was discovered and this trafficker was arrested. Continued investigations in Mexico City resulted in raids on several places, one of them being a small laboratory operated on a farm where cocaine was refined, with some indications also of heroin manufacture. Two other places were homes in the city, maintained as distribution points; and seizures aggregated to over 6 kg of refined and unrefined cocaine plus 3 kg of crude opium, as well as sundry laboratory equipment. In addition, 17 persons were arrested — 4 Cuban men, 8 Mexican men and 5 Mexican women; among the men arrested was the Cuban chemist who made the refined cocaine and heroin. Seized documents and questioning disclosed an elaborate organization for smuggling cocaine in Peru, Mexico, Cuba and the U.S.A., using women couriers for transporting the drug into the United States.

Cannabis

Cannabis is geographically the most widespread drug, and heavy seizures are reported each year of cannabis drugs such as hashish, marihuana, maconha, ganja, dagga, kif, etc. For example, in 1958 India reported seizures of over 45 tons of cannabis drugs; Brazil reported destruction of 15 tons of cannabis; the United Arab Republic reported 18 tons of seized hashish (the most concentrated form of cannabis); and in 1959 over 646 tons of cannabis were reported seized to the United Nations. Much of the traffic in cannabis consists of indigenous production and consumption largely of less concentrated forms, and this is so in Asia, Africa, Central and South America. International trafficking in cannabis drugs is also to a large extent carried on between countries with common frontiers, and the prevalence of "ant-smuggling" in many parts of the world places a very heavy burden on preventive services such as border patrols and customs. The control problem is further aggravated by the wild growth of the cannabis plant in many parts of the world, and to some extent by deep-rooted customs and practices. There is also the widespread traffic carried on by merchant seamen; and frequent seizures, for example, have been made by United Kingdom authorities of cannabis shipped from Rangoon. In one particular area of the world, the Middle East, the hashish traffic assumes serious international proportions and appears to be a very well-organized affair. This is largely a land traffic with Lebanon as the country of production, the Syrian province of the United Arab Republic, Jordan and Israel as transit countries, and the Egyptian province of the United Arab Republic as the principal target. In the latter country, it is estimated that there are large numbers of addicts to hashish, somewhere between 500,000 and one million. In North America there is a significant overland traffic in marihuana from Mexico to the United States. A point worth mentioning is that in some countries cannabis addiction is regarded as a possible introduction to addiction to the "white drugs" (such as heroin), which increases the dangers of the cannabis traffic.

Seizures of natural drugs other than those mentioned above, and their preparations, are reported each year, but

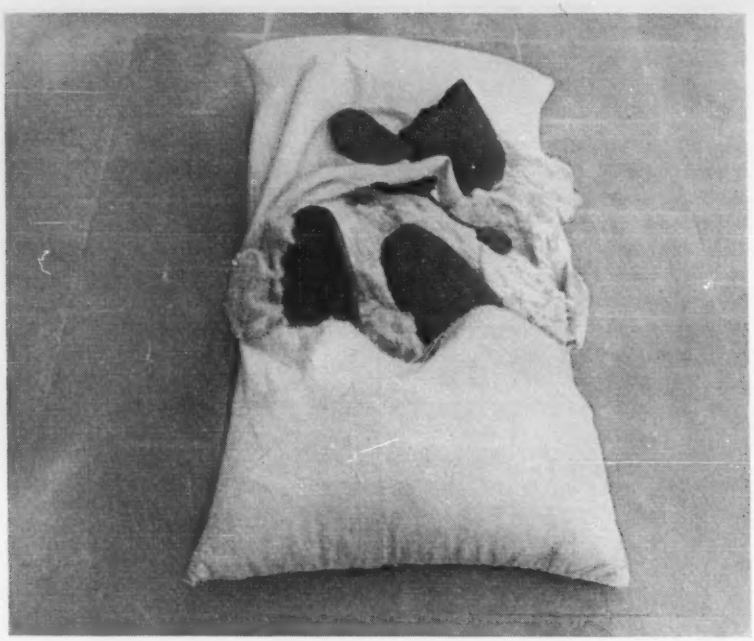

FIGURE 3

" Pantoufle " (" slipper ") of cannabis concealed in pillow

there have been no indications of organized international trafficking in such drugs. It is usually a local business, the drugs being obtained through thefts, forgery of prescriptions, violations of the national regulations regarding the safe-keeping of drugs, etc., and is often carried out by addicts themselves. The increasingly strict government control and international supervision of dealings in narcotics have kept to a minimum the leakages from the normal channels of manufacture and trade of narcotics for medical and scientific uses. The last significant case of trafficking in drugs diverted from normal trade channels was that of " Dr." Migliardi, who as technical director of the firm of Schiapparelli in Turin, Italy, had facilitated the disappearance of considerable quantities of heroin into the illicit traffic between 1948 and 1952.

Synthetics

Some reports of cases or seizures involving synthetic drugs are also made each year. There is a need for more precise data in respect of such seizures, to enable the international bodies to estimate the presence of synthetic drugs in the illicit traffic. Quantitatively, very small amounts are involved, however, and in almost all cases the drugs are obtained by thefts, forgery of prescriptions, etc.

Concealment

The ingenuity of traffickers in concealing drugs is boundless. Hashish and opium have been concealed in the stomachs of camels; weighted plastic bags containing drugs are attached to the bottoms of boats and released on approach of customs launches; the dumping of drugs with attached buoys is a favourite method; the use of false-bottomed suitcases, often transported by innocent persons, is well known; heroin and cocaine are concealed in finger-stalls, parts of the body, and often swallowed at approach of enforcement officers; all kinds of hollowed objects such as portable statues, radios, logs, etc., have been used; falsely declared postal packages, often consigned to fictitious persons, are common. The use of automobiles with special compartments is a regular feature of trafficking in the Middle East and Europe and in some parts of the Far East; traffickers have been known to operate relays of cars and to employ skilful signals to prevent capture. The use of air transport is particularly favoured by traffickers in South America and in some parts of the Middle East and the Far East, and reports have been made of the detection of clandestine landing-strips and the use of parachutes for dropping consignments of drugs. Commercial aircraft in trans-Atlantic flights are being increasingly used for trafficking by passengers. Of course, seamen continue to be important carriers of international traffic, and the searching of a modern merchant ship is no small task. For example, when the S.S. *Hai Meng* arrived in Hong Kong from Bangkok, enforcement officers boarded the vessel and went to the stern, where a crew member was arrested while attempting to run away. A key in his possession opened a steel door leading to an escape hatch into the propeller shaft and engine room. Two sacks of drugs were found hanging from the top of a steel ladder and a third from the hook of a block and tackle. The seaman then took the officers to the engine room, where he unscrewed some of the metal flooring and, after removing a dummy valve and a piece of false piping, uncovered an opening where four long waterproof rubber bags containing drugs were found. This extraordinary hiding-place was only uncovered through the voluntary aid of the seaman and would have defied discovery by ordinary search methods. The quantity of

morphine recovered, over 45 lb, was a record for Hong Kong; about 185 lb of raw and prepared opium were also seized.

Control

It has been generally recognized that attempts at control restricted to a small area are, at best, palliative. The improvements in the means of transport and communications have placed better facilities at the disposal of traffickers and enlarged their areas of activities. The situation becomes more serious where there is little or no effective co-operation between the central or frontier authorities of countries on the routes of the illicit traffic. There is also the grave risk of expanding addiction resulting from extensive trafficking to countries on the traffic routes. Close international co-operation is essential for successful counter-measures. To this end, an effective system of world-wide narcotics control has been built up, embodied in the existing international treaties which have been drawn up in stages during the past half-century or so. Under the general provisions of the Charter of the United Nations and under specific provisions of the international treaties on narcotic drugs, governments are bound to fight the illicit traffic in narcotic drugs and to co-operate with each other to this end. The purpose of these treaties as a whole is to limit to medical and scientific uses the production of and trade in drugs. Governments have undertaken in these treaties a number of obligations in this respect — e.g., in connexion with domestic control and supervision of the manufacture and the domestic and international trade in drugs; these, of course, all have an important general bearing on the prevention of illicit traffic; there are also a number of obligations undertaken by governments relating directly to repression of the illicit traffic. These are contained in the 1925, 1931 and 1936 Conventions and the 1948 Protocol, the administration of which in this respect has been entrusted to the United Nations. Governments will severely punish violations of their laws and regulations relating to narcotics control, particularly by imprisonment or other penalties of deprivation of liberty; in countries where the principle of the international recognition of previous convictions is recognized, foreign convictions for narcotics offences should be taken into account. Seized articles should either be destroyed or converted into non-narcotic substances or appropriated for medical or scientific uses, either by the government or under its control, and particularly dangerous substances, such as seized heroin, should be destroyed. A special narcotics administration or a central office should be established for application of the provisions of the international narcotics treaties, supervision of the national regime of narcotics control, and maintaining close co-operation with the national narcotics administrations of other countries. Governments shall closely co-operate with one another to restrict the use of drugs to medical and scientific purposes, and in the suppression of the illicit traffic. They will mutually exchange all relevant information on narcotic drugs and, in particular, on the illicit traffic. In this respect, laws and regulations, an annual report and seizure reports are required to be submitted to the United Nations, which makes all necessary data available to governments. The 1936 Convention includes specific provisions to facilitate the prosecution and conviction of international traffickers, particularly with regard to such matters as extradition, letters of request, etc. Governments are obliged to support and carry out the requests and decisions of the policy-making organs of the United Nations in combating illicit trafficking.

Governments have agreed that the United Nations, like the League of Nations before it, should be the main centre of the activities against the illicit traffic in drugs. It is the international organization which supervises the performance by governments of their obligations outlined above. It is entrusted with the improvement of the existing treaty system to meet new or changed conditions. It maintains and develops international co-operation in the common fight against illicit trafficking. It attempts to establish improved standards of national control within the limits of a community of sovereign States and renders different forms of assistance in this respect. Above all, it provides an international forum for public discussion of the problem of illicit trafficking and it uses all media of public information to this end.

Through an organized international system of reporting and review, all governments are made aware of the facts relating to illicit trafficking all over the world. Under the broad directives and general supervision of the General Assembly and the Economic and Social Council, particularly the latter, the Commission on Narcotic Drugs and its secretariat maintain a continuous watch on the world-wide pattern of the illicit traffic. There is regular exchange of information through the United Nations on important cases of trafficking and, for example, during 1959, 443 reports on seizures of illicit drugs covering 1,005 individual seizures were communicated. An annual report is made by each government to the United Nations on the broad lines of trafficking as it affects the countries concerned. Studies are carried out concerning different aspects of the traffic and control problems in badly affected regions of the world. During the annual session of the Narcotics Commission, the available information on the illicit traffic in drugs is made the subject of a special review by a closed committee of that body. Observers of interested countries are invited to attend, and representatives of such bodies as the International Criminal Police Organization and the Anti-Narcotics Bureau of the League of Arab States also participate. Subsequently, suggestions and recommendations are made both in respect of the world-wide problem and the situation involving single countries or groups of countries. These discussions and recommendations are available to international public opinion, which is the main force behind international narcotics control.

The Narcotics Commission and its secretariat keep close contact with the International Criminal Police Organization in this field, as this organization provides extensive communication and identification services for assisting in the tracing and apprehension of international criminals. At the annual meetings of that organization and through field contacts, enforcement officiers have the opportunity of developing close working relationships in a world-wide police network.

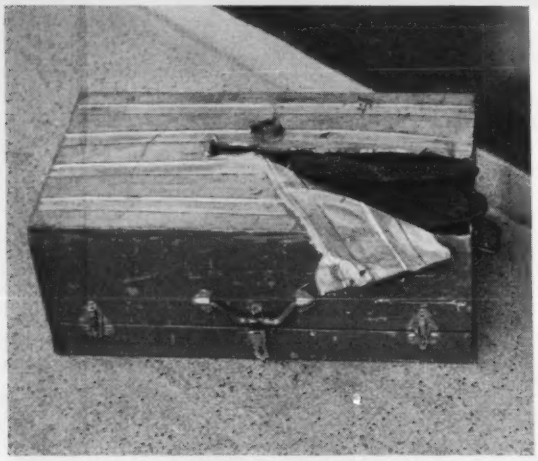

FIGURE 4

" Pantoufle " (" slipper ") of cannabis concealed in false bottom of a trunk

Efficient national control is of first importance in the fight against the illicit traffic. The international system of reporting and review assists governments in organizing the national effort to meet a common enemy. Considerable improvements in national enforcement action have been brought about as a result of the international process, and in particular there is growing co-operation between the national authorities and between them and the international bodies. During its fifteenth session, the Narcotics Commission gave special attention to this question. It stated in its report: " The international illicit traffic is highly organized and can only be combated by close international co-operation. In the first place, it is essential that there should be very close co-operation at the working level, especially along frontiers. Again, as in previous years, the beneficial results of close border co-operation in North America were mentioned as an example. The Commission was informed of the recent pact concluded between Turkey and Iran to strengthen and improve liaison arrangements at the enforcement level, particularly on their common frontier. The mutual benefits resulting from this step were stressed by the representatives of these countries and the Commission congratulated their governments on this measure. It was stated that the Governments of Turkey and the United Arab Republic intended to negotiate a similar agreement in respect of the Turco-Syrian frontiers; preliminary steps had already been taken and technical details would soon be worked out. The Commission hoped that the agreement would soon be concluded; such a step should produce beneficial results in a region which was much plagued by trafficking. The Commission noted the statement of the representative of Iran that steps had been taken during the year to negotiate border agreements with Afghanistan and Pakistan, and hoped that the latter governments would co-operate without delay. The Commission also noted the wish of the representative of the United Arab Republic to negotiate a satisfactory border agreement with Lebanon, which should materially assist in dealing with the cannabis (hashish) traffic. The observer for Israel mentioned that his government was willing to co-operate with its neighbours in combating the illicit traffic, but that such co-operation had so far been refused. He hoped that the assurance given by the representative of the United Arab Republic that his country desired to co-operate with neighbouring countries in that task would apply to all neighbouring countries without any exception.

" The Commission cannot stress too highly the importance of the close co-operation at the frontiers between neighbouring countries, which should result from broad and comprehensive agreements between them. Such co-operation seems to be of particular importance in some parts of the Far East and of South America where the terrain facilitates the activities of smugglers. The Commission hoped that the spirit of co-operation shown in the Turco-Iranian border pact would also be emulated in the near future by the countries of the Far East and of South America in which drug trafficking was rife. The representative of ICPO stressed that contacts between border authorities should be supported by exchanges between central offices, so that the centralization of information and the indispensable co-ordination would be rationally effected."

International Co-operation

Governments can and do receive more direct assistance from the international bodies when they so desire. There is direct and close contact between the secretariats of the international bodies and national authorities. Recent examples [1] of the type of help which international bodies have rendered to national narcotics administration in fighting the illicit traffic are the United Nations Middle East Narcotics Survey Mission which visited that region in September-October 1959, the International Criminal Police Organization Seminar on illicit traffic held in March 1959 at Paris, the South-East Asia regional seminar on the illicit traffic held in Lahore, Pakistan, in January 1960, and the Arab Conference on Narcotics held in Cairo in March 1960. The first inter-American meeting on the illicit traffic in cocaine and coca leaves held at Rio de Janeiro, Brazil, in March 1960 may also be mentioned in this connexion.

A useful development in the provision of more direct help by international bodies in fighting the illicit traffic is the present programme of technical assistance for narcotics control. Assistance provided in the various programmes generally falls into the following categories: (*a*) Sending experts to countries to give advice; (*b*) granting fellowships or scholarships to persons nominated by countries seeking aid in order to enable them to go abroad for training; (*c*) provision of small amounts of equipment usually for pilot projects; (*d*) regional projects. It was not until comparatively recently, however, that countries began to ask for technical assistance in the field of narcotics control, and a number of countries have not been able to ask for assistance in this field at the expense of other projects already in being or contemplated. Also, projects for improved narcotics control often stood to benefit the international community as a whole as much as, or more than, the country which would have to apply for the assistance, and at times could not be

[1] See the following articles in the present issue of the *Bulletin*.

fitted into the normal arrangements for technical assistance. For these reasons, by resolution 730 I (XXVIII) of 30 July 1959 of the Economic and Social Council and resolution 1395 (XIV) of 20 November 1959 of the General Assembly, a continuing programme for technical assistance for narcotics control was established within the regular budget of the United Nations. It is expected that the current programmes of technical assistance on a country or inter-country basis will result in substantial improvements in the control situation, particularly in regions badly affected by illicit trafficking.

Much has been done in throwing light upon and in controlling the illicit traffic in drugs, and the whole-hearted co-operation of governments in this field is a noteworthy feature of the international community. The illicit traffic in drugs has been aptly likened to water under pressure, feeling and sapping its way irresistibly to every furthest point of the system to which the pressure reaches. It searches automatically and continuously for any flaw, any imperfection, any method of breaking down the barrier that surrounds it; it is for ever striving to overcome its bonds and to break free. Wise laws, good regulations, good faith and sincerity, efficiency in practice, and a sustained common effort are all alike required to control the traffic in drugs. The Narcotics Commission emphasizes in its 15th-sess on report that the drug traffic continues at a high level. Constant vigilance by national authorities and close co-operation of all agencies concerned will need to be exercised in the years ahead. With the tremendous increase in the post-war years of the world's population, as well as consideration of the fact that people are growing up in an uncertain nuclear age, there may well be an increasing misuse of drugs and trafficking therein, presenting serious problems to national and international control organs.

Regional conferences on the illicit traffic in drugs

During the past four years, information made available to the United Nations regarding the illicit traffic in drugs has increasingly focused attention on three regions of the world — the Far East, the Middle East and South America. Despite insufficient reporting, annual seizures of drugs made, *inter alia*, by countries situated within these regions have been significant in relation to the world totals. The traffic in opium and opiates has centered in the Far East and the Middle East and clandestine manufacturing activities in the opiates, particularly in crude morphine, have been increasingly reported by countries in these regions. The traffic in coca leaves has centred in South America, and recently there have been reports of increasing clandestine manufacture of cocaine paste and cocaine in several countries of that region. There has also been widespread production of cannabis drugs and trafficking therein from the cannabis plant obtainable in these regions. Considerable supplies for illicit trafficking of narcotic raw materials have been obtained from illicit production or diversions from licit sources. Also, there has been extensive addiction to drugs in these regions which, in the case of some countries, is deep-rooted and affects many segments of society. In recent years, there has been information of the growing traffic in drugs obtained from countries in these regions to other parts of the world. Well-organized gangs of traffickers and smugglers have been known to operate from some countries within these regions and to use all available means to spread drugs. There has been little or no evidence that drugs in significant quantities are moving into these regions from outside, and it has been concluded that the centres of illicit trafficking in drugs lie within these regions. The menace of a spreading traffic in drugs originating in these regions, especially to countries receiving illicit drugs such as the United States of America, Canada, Hong Kong, Japan, Iran, the United Arab Republic, etc. has caused serious concern to governments and international bodies.

While it has been appreciated that national authorities have been doing their best to control trafficking, the regional pattern of trafficking as established in the reports of the Illicit Traffic Committee of the Narcotics Commission has pointed to the need for joint action on a broader basis which would attack the sources of illicit supplies, cut the routes of the regional traffic, apprehend well-known traffickers, and establish close co-operation with outside national and international agencies. Serious concern has been expressed at persistent reports to the Narcotics Commission of the absence of close co-operation, especially between countries in these regions where such action was most needed. The Economic and Social Council and the Narcotics Commission have repeatedly called for vigilance by governments regarding the international illicit traffic and have made recommendations for increasing the effectiveness of measures against illicit trafficking. These bodies have especially stressed the need for close and continuous co-operation between national authorities entrusted with suppression of drug trafficking, and have urged the use of all available methods, including the facilities of the International Criminal Police Organization. More recently, the Council and the Commission have drawn attention to the possibilities of joint international action under programmes of technical assistance in the field of narcotic drugs. In particular, it has considered that technical assistance in the form, for instance, of consultative groups, " task forces " for a particular region, seminars or other forms of joint action would be a most valuable way of developing co-operation between the enforcement services of countries affected by a common illicit-traffic problem.

By 1958, concrete proposals had already been considered in the Narcotics Commission for joint action in the Middle East, such as a United Nations regional bureau proposed by the UAR or a joint narcotics intelligence unit proposed by Iran. A definite result was the Middle East Narcotics Survey Mission which visited that region in September-October 1959, consulted with governments and made certain recommendations directly to them, and established a general report for use by the Narcotics Commission and interested governments. In respect of the other regions, while the form of joint international action was not clearly defined, there were reiterated demands for increased international co-operation on a continuing basis in the Far East and South America. In consequence, meetings were organized in these two regions of the world as first steps and with a view to considering the best means for furthering joint action at the international level to combat trafficking. The following paragraphs give an account of the first inter-American meeting on the illicit traffic in cocaine and coca leaves held at Rio de Janeiro, Brazil, in March 1960, and the first meeting of enforcement officers of south-east Asian countries, held at Lahore, Pakistan, in January 1960. There is also an account of the third Arab anti-narcotics conference, held in Cairo, UAR, in March 1950, which was a follow-up on the Middle East Narcotics Survey Mission.

First Inter-American Meeting on the Illicit Traffic in Cocaine and Coca Leaves, 21-25 March 1960, Brazil

The large production of coca leaves in South America is a matter of common knowledge, though it has not yet been possible to get an exact figure of the quantities involved. Only twice, in 1954 and 1957, were production statistics received for a given year, and even those data were largely conjectural. For each of these two years the figure was in the neighbourhood of 13,000 tons, the greater part being harvested in Peru — 10,200 tons — and Bolivia — 2,700 tons. The amounts of coca leaves harvested in South America

are almost entirely used for non-medical consumption — i.e., for chewing. The medical, social and other related aspects of the practice of coca leaf chewing in South America have on various occasions formed the subject of international study — e.g., the United Nations Commission of Enquiry on the Coca Leaf, 1949. Coca leaf chewing is the major cause of an international illicit traffic which also serves to supply the clandestine manufacture of cocaine. Better reporting had brought to light the existence of an extensive cocaine traffic, with indications of its spread to countries outside the region. In 1957 and 1958 the Government of Brazil reported that the cocaine traffic had reached dangerous proportions and was on the increase in Brazil and other South American countries. Small clandestine laboratories producing cocaine were reportedly operating in the State of Matto Grosso. The bulk of the cocaine traffic was, however, supplied by clandestine manufacture of the drug in Peru and Bolivia. The cocaine was then smuggled into Brazil, usually by air via Corumba and Aquidauana, and sent on to the big cities, notably São Paulo and Rio de Janeiro. The Government of Argentina also reported in 1958 that the illicit cocaine seized in that country was probably brought over the northern frontier with Bolivia, Paraguay and Peru, though other sources were not excluded. The Government of the United States of America reported an increasing cocaine traffic into that country; cocaine paste from Bolivia was being smuggled into Cuba, where it was processed into cocaine before passing into the United States. In a hearing before the United States Congress on 27 January 1959, the U.S. Commissioner of Narcotics mentioned that the cocaine traffic in Havana was tremendous, most of it coming from Bolivia. The ICPO received information that there was also a traffic between Chile and Bolivia.

The Narcotics Commission was disturbed at the growing information about the serious cocaine traffic situation in South America, and it was particularly concerned at its fourteenth session in 1959 at the several indications of the absence of full co-operation between the national authorities entrusted with the task of combating illicit traffic in those countries. The Commission called upon the Governments of Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Paraguay and Peru to encourage close mutual co-operation of their national authorities, and to work closely with the international bodies concerned in this field. Acting upon this request, the Government of Brazil took the initiative for the holding of a meeting of interested countries and found a favourable reception. Arrangements were then undertaken for an intergovernmental meeting to consider the serious situation resulting from the traffic in cocaine and coca leaves, and it was agreed that the meeting would be held in Rio de Janeiro, Brazil, in the latter half of March 1960. The main aims of the meeting were to obtain a clearer picture of the regional traffic in coca leaves and cocaine, to review the national arrangements for combating this traffic and to consider ways and means for improving the effectiveness of national enforcement and international co-operation.

At the invitation of the Brazilian Government, there were represented at the meeting the Governments of Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Paraguay and Peru. In addition Mexico, Venezuela and the United States of America, because of their special interest in the matter, were invited by the Brazilian Government and were represented. Also invited and in attendance at the meeting were the representatives of the United Nations and the ICPO. The meeting was opened at the Itamaqaty Palace, Brazilian Ministry for Foreign Relations, by Brazil's Acting Minister of State for Foreign Relations, on 21 March 1960, and its plenary sessions were subsequently directed by the Secretary-General of the meeting representing that ministry. The arrangements made by the Brazilian Government for the meeting were highly appreciated. The meeting was closed to the press and public, and a short statement on the progress of the work was released to the press daily. In addition to the representatives of the above-mentioned countries, a number of officials from the national agencies directly concerned with the control of illicit trafficking were also assigned to participate in the work of the meeting and fifty participants were so listed.

The meeting reviewed the current situation regarding the illicit traffic in cocaine and coca leaves and the national and international measures adopted against this traffic. Useful information was forthcoming, and the meeting particularly noted the alarming recrudescence of the illicit traffic in coca leaves and crude and refined cocaine in Bolivia, Peru and other American countries. It was also recorded that the present and potenial victims of this traffic are Argentina, Bolivia, Brazil, Canada, Chile, Colombia, Cuba, Ecuador, Mexico, Paraguay, Peru and the United States. The meeting adopted a final act to which were annexed four resolutions containing the recommendations aimed at the repression and suppression of the illicit traffic in cocaine and coca leaves. The text of the final act and its annexes were made available to the governments of the American States and to the United Nations. The meeting commended to the urgent attention of the American States the recommendations approved by it, and in particular stressed the need for full and constant implementation of the international narcotics treaties which concern the illicit traffic in coca leaves and cocaine.

In view of the significance of the meeting and the important work done by it, it is considered useful to reproduce the recommendations made by it as embodied in four resolutions:

Resolution No. 1

The delegations taking part in the Inter-American Meeting on the Illicit Traffic in Cocaine and Coca Leaves, held in the city of Rio de Janeiro from March 21 to 25, 1960,

Considering the advisability of bringing up to date and perfecting the legislation of their respective countries, with the object of achieving a more efficient control of the illicit traffic in crude and refined cocaine, coca leaves and other narcotics,

Recommend:

1. That more stringent penitentiary sentences be imposed against illicit cocaine manufacturers, smugglers, distributors

and traffickers, that stay of sentence not be admitted, and that a fine be imposed together with and without any reduction of the term of emprisonment;

2. That, in the cases aforesaid, no prisoner be released on bail;

3. That Judicial Courts be requested to expedite trials of persons charged with the offences described above;

4. That, in order to curtail the international movements of cocaine traffickers, laws and regulations should be adopted whereby visas, seamen's papers and documents for airline crews be denied to those persons already convicted of narcotic law violations or strongly suspected of being engaged in such illicit activities;

5. That in the case of any person who has been deported after conviction of violation of the illicit cocaine trafficking laws, a note to this effect should be made in his passport;

6. That, where not already a part of the legislation of a particular state, measures be enacted to make it compulsory for a special medical prescription to be made out for the sale of narcotic drugs;

7. That a state monopoly be set up for the importation, sale and manufacture of narcotic drugs or, should this not be possible, and in accordance with the international legislation in force, that the following measures be adopted:

(*a*) Limitation of the number of ports through which narcotic drugs are allowed to be imported;

(*b*) Strict surveillance of the system of import and export licences for the international trade;

(*c*) Prohibition of the practice of sending narcotics through the mails;

8. That, in accordance with the legislation of each state, an attempt should be made to secure suspension of civil rights for habitual drug addicts, so long as they fail to rehabilitate themselves and discharge their debt to society, and thereby deprive them of control over their estate and person, with the understanding, however, that this and other measures should always be taken in such a way as not to interfere with the rehabilitation of the drug addict;

9. That, in their extradition treaties, the states include infractions of laws and regulation for the control of narcotics among the grounds for extradition; and that, in such treaties, these infractions be included amongst the cases in which detention awaiting trial (or on suspicion) may be envisaged.

Resolution No. 2

The delegation taking part in the Inter-American Meeting on the Illicit Traffic in Cocaine and Coca Leaves, held in the city of Rio de Janeiro from March 21 to 25,

Considering that, notwithstanding the enforcement of existing legislation on control of the illicit traffic in crude and refined cocaine, coca leaves and other drugs, additional measures can be taken with even greater benefit to the populations of the continent,

Recommend:

1. That, wherever necessary, police, customs and excise services encharged with the responsibility of suppressing the illicit cocaine traffic be augmented at land, sea and air frontiers;

2. That, within the present framework of existing police, customs and excise administrations, there should be delegated to one special section the responsibility of co-ordinating all matters pertaining to the suppression and repression of the illicit cocaine traffic;

3. That the authorities of those countries where the manufacture or refining of cocaine has been or still is legal, exercise strict surveillance over former employees who have had knowledge and/or experience with the technical processes involved in order to avert their application of this professional knowledge and experience to criminal ends;

4. That in effort to locate clandestine factories and laboratories engaged in the illicit conversion of coca leaves into crude or refined cocaine (cocaine paste or cocaine hydrochloride), surveillance be made of procurement of chemical equipment for use in such conversion processes;

5. That in the states where the growing of coca leaves is illicit, and above all in remote, inaccessible areas thereof, programmes of detection be considered and studied with a view to the eradication of such plantations; and that, in the states where coca leaves can legally be grown, a cadastral survey be prepared carefully limiting the regions in which this is done;

6. That provisions be made in regulations of agencies encharged with the responsibility of repression and suppression of the illicit cocaine traffic, for the payment of rewards for information and assistance leading to the apprehension of illicit cocaine traffickers and the seizure of illicit cocaine supplies;

7. That efforts be made, within existing laws, to develop criminal conspiracy prosecutions against organized international groups engaged in the cocaine traffic;

8. That, to the extent permitted by legislation and rules of practice in the respective states, programmes be adopted for the training of police officers in the suppression and repression of the international illicit cocaine traffic, special courses being instituted, wherever possible, on the struggle against the illicit traffic in narcotics;

9. That measures tending to reduce the medical and scientific use of cocaine, and the manufacture thereof, be adopted, and that, at the same time, research be intensified with the object of discovering substitute drugs that are not habit-forming;

10. That measures be considered with a view to promoting the disappearance, as soon as possible, of the habit of chewing coca leaves;

11. That, whenever this seems advisable in a particular situation, intensive campaings be undertaken, making use of all up-to-date means available therefor, to disseminate an understanding of the harmful effects of the use of narcotics;

12. That, as soon as possible, steps be taken to increase number of beds available in each state for the clinical treatment of cocaine addicts;

13. That coca leaf and cocaine production and sale statistics be kept up to date, as recommended by the international control agencies.

Resolution No. 3

The delegations taking part in the Inter-American Meeting on the Illicit Traffic in Cocaine and Coca Leaves, held in the city of Rio de Janeiro from March 21 to 25,

Considering the advisability of better co-ordination of the activities of the states and international agencies in the repression of the illicit traffic in crude and refined cocaine, coca leaves and other narcotics,

Recognizing the impossibility of securing effective vigilance in a state, when not accompanied by and co-ordinated with the steps taken by other states, especially the neighbouring ones,

Recommend:

1. That the states not yet belonging to the International Criminal Police Organization (INTERPOL or ICPO) should become members of that organization;

2. That in those states not yet belonging to ICPO, a correspondent be assigned for the purpose of exchanging information relating to the international illicit traffic in cocaine; and that, as soon as feasible, the names of these correspondents be communicated to all the American states and to the Secretary-General of ICPO;

3. That, without detriment to the engagement arising out of bilateral and multilateral agreements on the subject, there may be a direct interchange of information between the American states in the course of enquiries into the illicit traffic in cocaine, whenever mutual interests are at stake; and regarding states which are members of INTERPOL, such an exchange should be made from one central national bureau of this Organization to another;

4. That the preventive measure be adopted of distributing to all American states and to the Secretary-General of ICPO:

(*a*) Lists of known or suspected illicit traffickers in cocaine, in accordance with the legislation of the corresponding state;

(*b*) Names and known or suspected movements of former employees of raw or refined cocaine manufacturers;

(*c*) Lists of automobiles and other vehicles (including descriptions and registration licence plates) known or suspected of being engaged in activities connected with the international illicit cocaine traffic;

(*d*) Lists of cocaine addicts or consumers;

5. That, upon the invitation of an American state, the United Nations or other American states may dispatch narcotic law enforcement specialists to supply technical assistance in connexion with the joint development of an international illicit cocaine investigation, wherein a mutual interest is involved, for the purpose of bringing such investigation to a successful conclusion;

6. That, in so far as this may be permitted by the legislation of the corresponding countries, provisions be made among American states to permit police officers of one country to participate in the interrogation of illicit cocaine violators arrested in another country, for the purpose of identifying new traffickers and apprehending sources of supply;

7. That those American states which have police training programmes should afford the opportunity of police officers of other American states enjoying scholarships;

8. That periodical inter-American conferences should be held concerning the international illicit cocaine traffic;

9. That close co-operation should be established among the police of the various American states for the purpose of taking joint and efficient action against the clandestine traffickers in narcotic drugs;

10. That each state acquaint the other with the channels most often used for the illicit traffic in coca leaves and cocaine;

11. That in cases of the international illicit traffic in narcotics, each state should distribute to all the others, for dissemination, in accordance with the Geneva Conventions, a photograph and finger-print criminal identification card of every delinquent arrested or fugitive and communicating same to ICPO and other international agencies;

12. That, without detriment to international engagements already assumed, the American states exchange, regularly and with the least possible delay, specific legislation enacted in relation to the illicit traffic in cocaine and other narcotic drugs, together with the jurisprudence connected therewith.

Resolution No. 4

The delegations taking part in the Inter-American Meeting on the Illicit Traffic in cocaine and Coca Leaves, held in the city of Rio de Janeiro from March 21 to 25,

Considering that the Economic and Social Council of the United Nations and the Commission on Narcotic Drugs thereof, in successive recommendations and resolutions during the period 1956 to 1959, has been proposing the adoption of measures relating to the supply of technical assistance by the United Nations to the countries that apply for same, in combating the illicit use of narcotics,

Noting that the Fourteenth Session of the General Assembly of the United Nations passed Resolution No. 1395 (XIV) whereby authorization was granted to include special allocations: in the Budget of that International Organization for the execution, on a continuous basis, of a programme of technical assistance in the control of the illicit use of narcotics and in dealing with cognate problems,

Taking account of the fact that the reports of the Delegations to this Meeting provide ample evidence of conditions existing in the American Continent characterized by a lack of equipment and means of surveillance to restrain the cultivation, trade and industrialization of coca leaves and the traffic in the illicit use of raw and refined cocaine,

RECOMMENDS:

1. That American states take full advantage of the opportunities of technical assistance offered by the United Nations, the specialized agencies and other international organizations, with a view to remedying the defects indicated, and in particular with regard to the following points:

(*a*) Assistance to the national authorities of coca producing countries for the effective implementation of the international conventions and the internal laws and regulations dealing with the seeding, cultivation, manufacture and commerce of coca leaves and crude and refined cocaine;

(*b*) Adoption of priority criteria to enable personnel specializing in combating the illicit international cocaine traffic to obtain study and training grants;

(*c*) Aid of technicians in order to draw up, in co-operation with the authorities of the countries concerned a co-ordinated regional programme for combating the international illicit traffic in narcotic drugs;

(*d*) Acquisition of fuller information about the medical and sanitarian measures applicable to the treatment of drug addicts.

2. That it be recommended to the World Health Organization that of the technical assistance financial allocation of each country concerned, a certain amount should be earmarked for use in connexion with problems of narcotics.

3. That the purport of this recommendation be communicated to the Fifteenth Session of the Commission on Narcotic Drugs of the Economic and Social Council of the United Nations, to be held this year, with particular emphasis on the wisdom of such applications for technical assistance in this field being made by American countries and granted in order to further the common interests of the continent.

South-East Asian Regional Conference on Illicit Drug Traffic, 18-23 January 1960, Pakistan

At the thirteenth session of the Narcotics Commission, in 1958, it was again noticed that in the Far East there was a heavy flow of opium from the Burma-China-Thailand border areas of clandestine cultivation through Thailand and on to the Federation of Malaya, Singapore and Hong Kong. Clandestine cultivation reported in Burma, Laos, the Republic of Korea and Thailand was another source of illicit supplies. There was a traffic in opium from India to south-east Asian ports; there was a traffic across the Indo-Pakistan and Afghanistan-Pakistan borders. No abatement was noticeable in the flow of crude morphine from clandestine sources near northern Thailand through Bangkok to Hong Kong, Singapore, Taiwan province of the Republic of China and other routes. Clandestine manufacture of diacetylmorphine in Hong Kong continued at a high level, and a traffic between Hong Kong and Macao continued to be reported. A traffic was also reported from Hong Kong towards the Taiwan province of the Republic of China and Japan. An important traffic in diacetylmorphine continued to be directed towards North America, and particularly the United States. There was also extensive trafficking in cannabis obtained from sources within the region. The view was expressed in the Commission that close co-operation amongst the authorities of a number of countries in the Far East was absolutely essential in particular to stop the heavy flow of opium and opiates; and the Commission considered that, in view of the volume of illicit traffic in the Far East, co-operation at the international level between the enforcement sevices should be developed in that part of the world, and it would welcome such steps as the ICPO might take towards that end — for instance, in the form of a regional meeting of officers responsible for the repression of the illicit traffic. The following year, in 1959, the Commission's attention was drawn to the reports of Thailand and Viet-Nam indicating an absence of co-operation between the authorities concerned of several countries in the Far East. The Commission considered it regrettable that there was still no improvement and again called upon the Governments of Burma, Cambodia, Laos, Thailand and Viet-Nam to encourage close co-operation of the authorities concerned in order to curb the traffic in opium and opiates in the region.

Acting upon the above suggestion, the ICPO, with the concurrence of its General Assembly, undertook the organization of a meeting of enforcement officers of south-east Asian countries, the first of its kind in that part of the world. After preliminary negotiations with interested governments, it was agreed that the conference would be held in Lahore, Pakistan, in the latter half of January 1960. The main aims of the conference were indicated to be: (*a*) to have a better knowledge of the illicit traffic in drugs in south-east Asia and (*b*) to improve active international co-operation in the day-to-day suppression of the illicit drug traffic in the region. The conference was planned to be of the round table type, each delegation having the opportunity to make statements or give information on each question on the agenda, and it was expected that sessions would be in plenary without the necessity of committees.

The conference was opened in the West Pakistan Legislative Assembly Building by the Minister for the Interior of Pakistan on 18 January 1960. The following countries were represented: Ceylon, Hong Kong, India, Indonesia, Japan, Laos, Macao, Pakistan, Philippines, Sarawak, Singapore and Thailand. Observers for Australia, the Federation of Malaya, United Kingdom and the United Nations were present. In all, there were forty-one officials who participated in the meetings, and they were more or less directly concerned with the suppression of the illicit traffic in drugs. The Inspector-General of Police of West Pakistan and the Deputy Director-General of the Excise Department of Thailand were unanimously elected Chairman and Vice-Chairman respectively. The arrangements made by the Pakistan Government for the conference were extremely satisfactory. The meetings were closed to the press and the public, but the press was kept informed through official statements.

In the discussions the following items were covered: general aspects of the illicit traffic (an exposé of the situation by drug and by country; the main known traffickers, their influence and activities); special problems arising from the

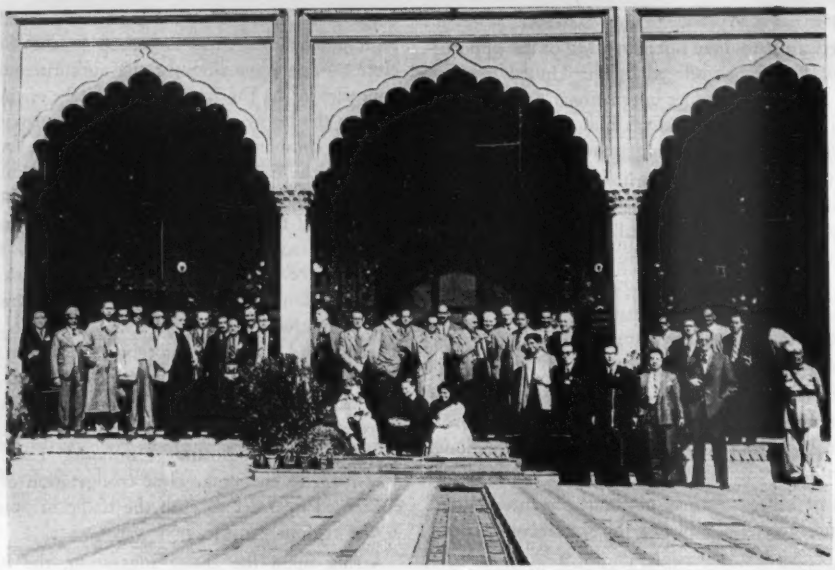

FIGURE 1
Delegates visiting Lahore

illicit traffic; organizing suppression on a national level; the common struggle against the illicit drug traffic; the international system for controlling drugs, and miscellaneous subjects. A final report was adopted by the conference which was intended for communication to the national control bureaux of the ICPO and for the information of the Narcotics Commission.

While the pattern of trafficking in drugs was known in general terms, the conference helped to focus attention on the main sources of supplies and the direction of the main flow of opium and opiates in the region. In some instances, additional information not contained in official reports was forthcoming. Statements made by delegates underlined the difficulties of getting at the top organizers of the traffic because of their financial resources and connexions in official circles, or because of existing legislation hampering the collection of evidence. The close links of the narcotics traffic with other illegal activities such as gold smuggling and violation of currency regulations were stressed by some delegates; almost all the delegations agreed upon the existence of corruption; the use of juveniles as carriers for the retail traffic (mostly in cities) was noted. The conference recognized the serious economic and social aspects of trafficking and addiction, the heavy costs to governments in combating the drug evil, and the dangers of increased addiction to the " white drugs ". Information was exchanged on the national arrangements for enforcement and suppression, and details of the mechanics of continuing co-operation between authorities of different countries were discussed. There is already substantial direct exchange of information on the illicit traffic between the countries of south-east Asia, and the conference pointed out the need for improvement in respect of some countries.

The conference worked in an atmosphere of sincerity and cordiality. It helped to bring about direct contacts, and there were some useful exchanges of information. It also increased understanding of the broader aspects of the illicit drug traffic, and gave an opportunity of bringing the serious concern of international bodies at the situation in the region to the attention of officials concerned with suppression of the traffic. It highlighted certain situations, such as sources of illicit supplies, absence of full co-operation between some countries, etc., which needed redressment through action at higher policy levels. As the first of its kind in south-east Asia, the conference left a favourable impression, and many of its participants expressed the wish that regional meetings on narcotics control in that part of the world should be more frequently organized in the future.

Third Arab Conference on Narcotic Drugs, 7-11 March 1960, United Arab Republic

The Middle East is a region where there has been heavy trafficking in drugs obtained almost entirely from countries within the region. In some respects, the traffic in opium and cannabis (hashish) has been traditional. The Arab countries have been seriously affected by this trafficking, and estimates of addicts in the Egyptian province of the UAR showed that country as a principal target of the organized regional drug traffic. In view of this situation, the League of Arab States created in 1950 the Permanent Anti-Narcotics Bureau, with headquarters in Cairo, UAR, hoping thereby to establish close co-operation amongst the several agencies combating the illicit traffic in the Arab states. The chief purpose of this bureau was " to control all measures taken or to be taken by each member State for combating the cultivation,

FIGURE 2
Interpol meeting in Lahore: the bureau

manufacture, addiction to and trafficking in narcotic drugs within its boundaries and for the prevention of smuggling narcotics from or to any of these States". More recently this bureau has been holding an Arab conference on narcotic drugs at convenient intervals of a year or so for the purpose of assessing the over-all traffic situation in the region, reviewing the effectiveness of measures during the period under consideration, and adopting further measures that may tend to improve the situation. The resolutions and recommendations adopted by the conference are communicated for the information of the Narcotics Commission. It has also been customary for the Director of the Bureau to transmit an annual report on the traffic situation in the Middle East for the information of the Narcotics Commission.

Following upon the Middle East Narcotics Survey Mission, September-October 1959, the third Arab conference on narcotic drugs was called for the first half of March 1960 in Cairo, UAR. This year, the Arab League invited a number of other countries affected by the illicit traffic in the Middle East and some international organizations to send observers to the conference. The conference was opened at the Police Club, Cairo, by the Governor of Cairo Province on 7 March 1960. The following countries were represented: Hashemite Kingdom of Jordan, Sudan, Saudi Arabia, UAR (Egyptian and Syrian provinces), Morocco, Lebanon and Yemen. Observers for Pakistan and the United States of America were present. The League of Arab States and the International Criminal Police Organization were represented. The United Nations, at the request of the Government of the UAR and Yemen in accordance with the current arrangements for technical assistance, provided the services of a consultant and other conference facilities such as interpreters and stenographers. In all there were twenty officials who participated in the work of the conference. The representatives of the UAR and Yemen were unanimously elected Chairman and Vice-Chairman respectively. The meetings were closed to the press and public, and the press was kept informed of the work through short official statements.

As in previous years, the conference dealt with the narcotics traffic affecting the Arab countries in particular. It was thought useful to review the report of the Survey Mission, and in the light of that report to considerer what further measures should be adopted for combating the traffic in drugs. The delegates present informed the conference of the drug traffic affecting their respective countries, and useful information was given by the observers of Pakistan and the United States of America. The conference learned of the machinery of international control of drugs, and of the facilities for prompt exchange of information on the illicit traffic available through the International Criminal Police Organization. The conference adopted a final report with recommendations for communication to the participating countries and the Narcotics Commission.

During the discussions, attention was focused on the sources of supplies of illicit opium and hashish which entered the regional traffic. It was expected that measures already taken or in progress would soon lead to an improvement in the control of narcotics raw materials at the sources of production. Particular emphasis was laid upon the recommendations of the Survey Mission's report for strong national policies to control trafficking and deal with addiction. The conference considered it useful to reiterate the proposals of the Survey Mission for improving national enforcement machinery and international co-operation through the use of technical assis-

tance programmes of the United Nations. In concluding, the conference recorded the usefulness of the work done and considered that such meetings would in future be very helpful, hoping at the same time that all countries invited would be able to attend.

* * *

While it is too early fully to assess the effect of the inter-country meetings on control of illicit traffic that have taken place as narrated above, these meetings were the first practical steps towards improved international co-operation in the fight against the international illicit traffic in drugs. When informed of them at its fifteenth session in 1960, the Narcotics Commission was gratified at the reponse of governments to its previous requests and expressed appreciation particularly of the actions of Brazil, Pakistan and the ICPO for their initiative in organizing these meetings. The Narcotics Commission thought that the meetings had been important and useful. The direct contacts and exchanges between officials of different countries, the first-hand information obtained on the illicit traffic and the adoption of common measures to control trafficking were some of the fruitful results. Experience clearly showed that there was a place for such meetings in national and international programmes for controlling the drug traffic. The Commission hoped that there would be further development along these lines in the future, and observed that for the maximum benefit to be obtained such meetings should be well-planned, intensively organized and attended by officials more or less directly concerned with control of the drug traffic. The participation of international bodies in such meetings would provide valuable help, guidance and information. The Narcotics Commission also strongly supported the idea of holding periodic informal regional conferences to be attended by narcotic law enforcement specialists, which should have fruitful results. And the Commission unanimously adopted a resolution on the subject of regional conferences for narcotics control, inviting governments to consider the possibility of furthering such conferences either on their own initiative or through the United Nations. Finally, the Commission emphasized that there are other methods of improving regional co-operation for narcotics control besides regional conferences and missions such as the Middle East Survey Mission. It invited the Secretary-General of the United Nations, in drawing up the programme of work of the Secretariat, to give special attention to ways and means of furthering the development of co-operation between governments with common or interlocking regional problems, and between these governments and the international bodies.

The Middle East Narcotics Survey Mission (September-October 1959) of the United Nations

Year after year since the Commission on Narcotic Drugs was established after World War II information has been forthcoming from governments participating in the international narcotics control system showing that there was a heavy traffic in opium originating in the Middle East, and going from it to other parts of the world, especially through the Mediterranean towards North America. Since 1951, there were reports of increasing manufacture of opium into crude morphine and diacetylmorphine (heroin) within the region. There was also a constant picture of a heavy traffic in cannabis (hashish) directed to a large and growing market within the region itself. Increased co-operation amongst the enforcement authorities of countries within and outside the region was bringing to light the existence of organized international gangs of traffickers operating from bases in the Middle East. Typical examples were the Abou Sayia gang operating in Lebanon, Syria and Turkey, and the organization, headed by Samil Khoury, with extensive connexions in Europe. One of the principal targets of the regional traffic in opium and hashish was, and continues to be, Egypt (now the Egyptian province of the United Arab Republic). In view of this, the Council of the League of Arab States decided, in January 1954, to recommend that a United Nations Anti-Narcotics Bureau should be created for the region of the Middle East with headquarters in Egypt. The object of the proposed bureau would be " to watch the situation on the spot, and to devise and enforce the best means for combating the cultivation and manufacture of, traffic in and addiction to narcotics ". During the discussion of this proposal at the eleventh and twelfth sessions of the Commission on Narcotic Drugs in 1956 and 1957, some doubts were expressed regarding the desirability of creating special permanent international machinery for dealing with the situation. The proposal, in the form in which it was made, appeared to go farther than normal practice regarding regional organization with respect to composition, jurisdiction and functions. Some aspects required further study and clarity. In addition, some countries of the Middle East received the proposal unfavourably. In view of this, there was general agreement that the matter should be looked at afresh and from another angle. During the thirteenth session of the Commission, in 1958, several delegations considered that an exploratory mission to the region was needed in order to facilitate a fuller examination of the problems involved and of practicable means of solving them, and to achieve this a joint draft resolution was tabled by representatives of Canada, India, Iran, the United Arab Republic and the United States. The Commission adopted this resolution, which in turn was adopted by the Economic and Social Council at its twenty-sixth session as resolution 689 I (XXVI). It would be useful to examine this resolution and the discussions surrounding its adoption, as together they established the framework for the Survey Mission within which it carried out its task.

It was explained in the Commission that the reports of its Illicit Traffic Committee showed that the Middle East was a region of serious trafficking. No one could be satisfied with that situation, although it was recognized that a number of governments in the region had put forth very big efforts to fight this traffic, in particular the very courageous and far-reaching step taken by Iran in 1955 prohibiting opium production. There were, of course, other regions where situations of similar gravity existed; however, the general situation in the Middle East, though not crystal clear, was more susceptible of improvement through concerted action than in some other regions where similar action was also needed, and the Commission might therefore take a lead in this area. In any case, it was pointed out that a mission to the Middle East did not preclude the sending of missions to other regions.

The resolution of the Council requested the Secretary-General to appoint a mission of not more than five members serving as individual experts, and chosen for their knowledge of the problems concerned and of enforcement work. The Secretary-General was also asked to provide the mission's secretariat and to make the necessary administrative arrangements for its work. During the discussions in the Commission and the Council, it was pointed out that it was customary for the Secretary-General to be entrusted with the task of appointing members of missions composed of experts and not of government representatives. And it was agreed that the mission should include both experts from the Middle East with a knowledge of regional narcotics problems and experienced members from outside the region so that the requisite professional capacity and experience could be brought together in a well-balanced group. As the selection of the members would be a delicate matter, the Secretary-General was left the widest possible freedom of action, lest pressures should prejudice the work of the mission before it began. However, the representative of the United States expressed the hope that nationals from Lebanon and the United Arab Republic would be selected to take part in the mission.

The resolution went on to request and authorize the mission to examine and consider the problems involved in consultation

FIGURE 1

One ton of narcotics (hashish and opium) captured in a single seizure from a party of twenty traffickers
(This is one example of many such seizures reported to the Commission)

with, and with the consent of, the governments concerned. It was explained that the mission's operational area would include those countries which in past years had come under the heading of "Middle or Near East" in the documents relating to the item on illicit traffic on the Commission's agenda. Of course, the mission or members of it would not necessarily have to visit every country in the region and would have some latitude to arrange, in the light of the extensive prior contacts with governments that would be necessary, in what ways consultation during the period of the mission would take place. In the Commission, the view was also expressed that the mission should limit its contacts to governments and not contact public or private organizations from which false information might be obtained. Other representatives cited private organizations which they felt might be able to furnish the mission with useful information. It was generally accepted that the text of the resolution permitted governments to send such witnesses as they considered useful to be heard by the mission.

According to the resolution, the mission should familiarize itself with the situation by studying data transmitted by governments and the United Nations Secretariat, by discussions with representatives of the governments concerned and by visits to countries in the regions which had major narcotics problems. The mission was also asked to discuss with governments their views and suggestions regarding the improvement of the situation. It might make communications for the consideration of individual governments or groups of governments which would be kept confidential as between the mission and the governments concerned. It should also report to the Commission on Narcotic Drugs on general matters and suggestions that were not confidential. The mission was further empowered to make suggestions on the ways in which technical assistance might be utilized to increase the effectiveness of measures taken against the illicit traffic.

It was explained in the Commission and the Council that the relationship between the mission on the one hand and governments on the other would be similar to that with which most governments were very familiar in the provision of technical assistance. The main difference was that this was a technical assistance mission to a number of governments with differing but interconnected problems, a kind of corporate technical assistance "task force". The mission should have the opportunity of making confidential communications to governments because of the secret and confidential nature of some of the information involved and of the counter-measures adopted against the illicit traffic. At the same time, the mission should not replace the Commission in its function of advising governments, but should help it in increasing the efficacy of measures for curtailing the illicit traffic. Thus, the confidential communications should be limited to those matters where this procedure was necessary, and the fullest possible report should be made to the Commission. The object of the mission, which should govern its procedures, was to assist governments in their work against the illicit traffic, and also to guide the Commission, for its future consideration of the matter, on the best ways in which the difficulties of governments could be met.

In the light of Council resolution 689 I (XXVI) and the discussions of the Commission and the Council, the Secretary-

General commenced the requisite preparations for the survey mission. These involved negotiations for the appointment of the experts who were to serve as members on the mission; governments were approached on a visit of the mission to the Middle East region during January-March 1959, or alternatively during September-October 1959, the earliest feasible dates in relation to the international time-table and taking into account other considerations; financial, travel and secretariat arrangements were set afoot; provisional schedules were worked out for the mission's stay in the region which would enable consultations and travel programmes to be projected; United Nations offices and other international agencies in the region were approached for the loan of office, conference and travel facilities. However, by December 1958 it became obvious that the prior date proposed, January-March 1959, was found to be too early by a number of countries in the region. Most of the governments concerned, however, had accepted the second proposal that the mission should commence in the first half of September 1959, and preparations went forward on that basis.

The Secretary-General appointed the following persons to serve as experts on the mission:

Mr. Edmond Azizi, who has had a professional career in the Lebanese customs services, and at the time was captain of brigade. He has specialized in questions concerned with the prevention of narcotics smuggling, and has also represented his country at a number of international conferences.

Mr. J. P. G. Goossen, who has held a number of posts in the legal services of the Government of the Netherlands. From 1946 to 1953 he was Assistant Director-General of the Netherlands State Police. At the time of appointment he was in private practice as a barrister at the Court of Appeal, Amsterdam.

Mr. Veli Inanç, who has held a number of posts in the legal services of the Turkish Government, including that of Public Prosecutor, and has also been a member of the International Social Services Co-ordination Committee. At the time of appointment, he was a senior judge in the Ministry of Justice.

Mr. Leonard H. Nicholson, who has had a professional career in the Royal Canadian Mounted Police, and served as Commissioner from 1951 to 1959. He was a vice-president of the International Criminal Police Organization in 1957 and has represented his country at a number of international conferences.

Major-General Abdel Aziz Safwat, who has had a professional career in the enforcement services of the Egyptian Government and the United Arab Republic, in which he became head of the anti- narcotics forces. He subsequently served as Governor of Port Said province and at the time of appointment was Governor of Cairo province and Director of the Permanent Anti-Narcotics Bureau of the League of Arab States. He has also represented his country at a number of international conferences.

The mission and its secretariat convened as a whole in Cairo, United Arab Republic, on 7 September 1959. This was in accordance with the arrangements made by the Secretary-General subsequent to consultations with the governments of countries in the Middle East. At its opening meeting, it was informed that Mr. Azizi was unable to attend owing to reasons of health. Mr. Azizi joined the mission only during its stay in Lebanon, 16-22 September, and withdrew from the mission on the latter date on medical grounds. From the outset the mission agreed to proceed in a practical and flexible manner without spending much time on procedural questions. Mr. Nicholson and Mr. Goossen were unanimously elected Chairman and Vice-Chairman respectively. The mission established a provisional time-table for consultations with officials of the countries covered in its itinerary and it adopted certain rules to facilitate its own internal working. There was general agreement that the maximum amount of time should be devoted to consultations with the officials actually involved in combating illicit trafficking and, if possible, to observing the problems of control at first hand. A provisional itinerary was adopted by the mission subject to the framework that had to be worked out in advance with the governments concerned within the time-limits and financial allocations available. The mission stayed in the Middle East region for about six weeks, and consultations and discussions took place with the authorities of Afghanistan, Cyprus, Hashemite Kingdom of Jordan, Iran, Iraq, Israel, Kuwait, Lebanon, Saudi Arabia, Trucial States, Turkey, United Arab Republic (Egyptian and Syrian provinces) and Yemen.

The mission was informed of the illicit traffic situation in the region by reports of governments on illicit trafficking, reports, recommendations and resolutions of the United Nations and the International Criminal Police Organization, and reports of the Permanent Anti-Narcotics Bureau of the League of Arab States. Information regarding the system of international control and the functioning of the international bodies concerned with the control of narcotic drugs was passed to it. The mission particularly noted the provisions in the international treaties on narcotic drugs which dealt directly with the repression of the illicit traffic. In the countries it visited, the mission interviewed a Prime Minister, Ministers of Interior, Foreign Affairs, Police and Health, or the responsible Under-Secretary of State. It held consultations with senior officials representing the government departments directly concerned with the control of drugs and combating the illicit traffic, including the heads of the anti-narcotics administrations; the directors-general of public security, justice and pharmacies; the chiefs of police, judiciary police, gendarmerie, frontier corps, coast-guard, customs; inspectors of pharmacies, chiefs of pharmaceutical laboratories; town and provincial governors; and some local police and security officials. In all, the mission consulted with over 110 officials in its tour of the region. The mission was provided with opportunities to observe in general the actual problems of control. It visited a number of enforcement services, saw some recent large seizures of contraband and had described the *modus operandi* of smugglers and traffickers by men who are actually engaged in the fight against them. It stopped at gendarmerie and customs posts and was shown police identification branches and laboratories. It saw some of the desert

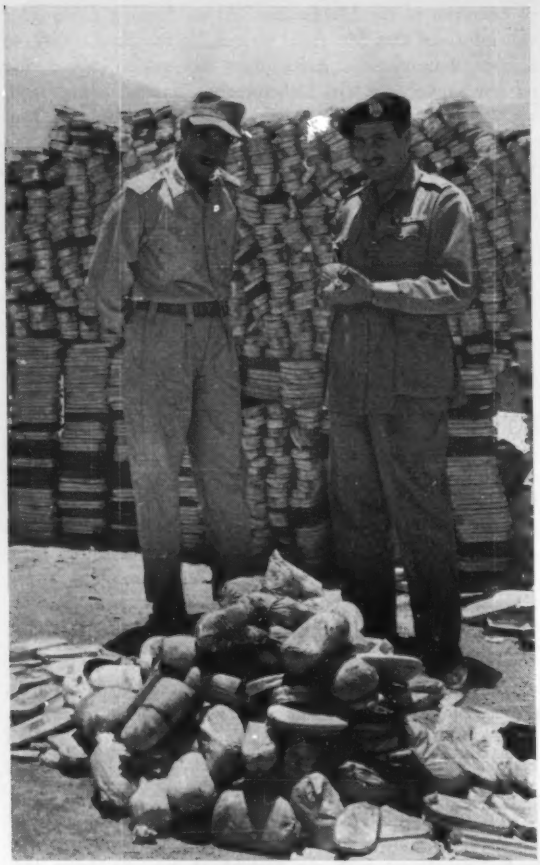

FIGURE 2

Other example of narcotics seized (the flat packages are " pantoufles " of hashish)

and mountain terrain over which smugglers operate, and it toured a hospital devoted entirely to the treatment of addicts.

As authorized by the Council resolution, the mission made confidential communications direct to certain governments on matters which were domestic rather than international in character, and which, in the judgement of the mission, could best be dealt with in this fashion. Included in these communications were certain recommendations thought to be appropriate; this procedure was found to be useful and convenient.

The report of the mission to the Commission on Narcotic Drugs was adopted and signed by its members on 20 October 1959 and communicated to the Secretary-General for transmission to the Commission. The mission's report was unanimous except for a reservation by Mr. Inanç on a procedural matter. Mission members recorded their appreciation for the cordial reception extended and the understanding co-operation given by all authorities and officials visited. They hoped that their efforts would contribute in some degree towards an improvement of the traffic situation in the region.

At the outset, the mission considered it essential to describe briefly the illicit traffic situation in the region. It approached this situation as a regional problem, a point of view which was confirmed by the information it obtained, particularly from consultations with officials. The mission focused attention on the serious features of the illicit traffic, especially the aspects that are regional in character, giving less attention to features which are largely of national interest. It found that there was a problem in this region and one of serious proportions. There was a substantial cannabis (hashish) production and consumption; there was a large opium production and consumption, and opium derivatives went from this region to other parts of the world and in particular to Europe and North America. There was no evidence of any significant importation of illicit drugs into this region from other parts of the world. Several indications were noticed of the growing use of the " white drugs " in the region, and there was also evidence of the export of the " white drugs ", particularly crude morphine, to markets outside the region. The regional traffic followed all routes, by land, sea and air. An important land route for the hashish traffic passed through the Syrian province of the United Arab Republic, Jordan, Israel and to the Egyptian province. The opium traffic to Egypt, too, followed this land route to a significant extent. Opium was converted to crude morphine to facilitate its transport via Syria, Lebanon or Turkey to European countries such as France and Italy for refining, whence it is directed towards North America. The mission noted that along the main routes and in border areas there are features which work to the advantage of the smuggler. There are tribes, some of them nomadic, that span frontiers and whose members have loyalty to the tribe rather than either country. There are regulations in some border areas permitting residents to move freely within a specified distance on either side of the frontier. There are families and groups that have engaged in smuggling for generations and look upon it as a way of life rather than a criminal undertaking. Some of these groups did not hesitate to resist by armed force if threatened whith apprehenston. The mission recorded some of the tactics used by smugglers which rendered the work of enforcement services challenging, dangerous and difficult.

Several suggestions for improvement of the situation came before the mission or originated within the mission itself, and a discussion of the more important suggestions was included in its report. The proposal for the establishment of a United Nations regional narcotics bureau, in the same form as previously submitted to the Narcotics Commission, was recommended to the mission by representatives of the United Arab Republic, Saudi Arabia, Jordan, Yemen and Kuwait. The mission noted that there already existed within the United Nations official machinery for collecting and collating general intelligence on the narcotics traffic; there was also officially recognized machinery for co-ordinating and supporting enforcement action, this in the form of the ICPO-INTERPOL; there was also the Permanent Anti-Narcotics Bureau of the Arab League to encourage better enforcement in member States of the League. The proposed bureau would differ from other organizations in that it would have certain

supervisory or executive functions within national territories. "The principle of national responsibility arises here. Is it wise to interfere with that principle, which is stated in Article 2, paragraph 7, of the United Nations Charter? If responsibility is divised in any degree where would accountability lie in case of failure to meet international commitments? And, aside from all other factors, how could such a bureau operate successfully in the region without the whole-hearted participation of all the countries?" (This was in respect of the stated attitude particularly of Lebanon and Turkey.) On the other hand, the mission considered that a small group of United Nations experts might with advantage visit the area periodically, consult with government officials, carry out such other functions as are given them and thereafter report as might be arranged.

A number of countries urged the need for greater co-operation at the working level, especially along frontiers. This need in many sections was clear and frontiers instead of acting as barriers to smugglers actually in some areas facilitated their activities. However, to get improvement in co-operation at working level it was essential to have broad and comprehensive agreements between neighbouring countries, and the mission mentioned the recently concluded Turco-Iranian border pact as a pattern which could be followed with advantage by other countries.

The effective control of cultivation of narcotics raw materials is essential to suppressing the national and regional traffic in drugs. The mission recorded that from its discussions with Lebanese officials it was clear that the large-scale production of hashish was almost inseparably linked with other social and economic problems. On the other hand, neighbouring countries continued to suffer from this production and the mission "was not informed of any concrete plans for eliminating hashish cultivation". In respect of opium cultivation the mission noted the new Turkish law enacted in July 1959 which promised to bring the control of opium production in that country into conformity with the requirements of the 1953 Opium Protocol.

The mission emphasized the necessity for a strong national policy and machinery to control illicit trafficking. "Generally speaking, it seems beyond dispute that a fundamental requirement for good enforcement in any area is determination of national governments to eradicate the illicit narcotics traffic within their borders. Where such a determination exists and is coupled with a readiness to co-operate fully and wholeheartedly with neighbouring States, the narcotic problem will be kept under control. There must be strong, honest and well-directed administrative and enforcement machinery in each country to apply the legislation and carry out the policy of the government. Where such machinery is found, not only is the standard of national enforcement high, but international agreements may be applied fully and effectively."

In view of the international nature of the traffic, a number of suggestions were made to facilitate prosecution and conviction of international traffickers, including the recognition of foreign convictions for narcotics offences, extension and use of conspiracy proceedings to get at ring-leaders, and separate penalty provisions for persons proven to be leaders in smuggling and trafficking schemes.

The existing international system of reporting of illicit trafficking and the facilities for prompt transmission of information of the ICPO had proved their value. What was needed was fuller and more effective utilization of the existing machinery in this regard. A number of inquiries concerning technical assistance of different kinds were received by the mission. It drew attention to the existing facilities of technical assistance programmes of the United Nations and other international agencies.

Finally, the mission incorporated a set of recommendations which it considered useful for the guidance of governments and the Narcotics Commission. These are reproduced below, as follows:

As to laws and regulations

(*a*) That where applicable governments of countries in the region be urged to consider the need for exemplary penalties for smugglers and traffickers together with the desirability of having separate penalty provisions for these crimes.

(*b*) That conspiracy prosecutions or some other procedure be used to identify and prosecute ring-leaders in narcotic smuggling and trafficking gangs.

(*c*) That the principle of extra-territorial prosecution for narcotic offences be made use of to the fullest extent possible wherever the laws, facts and circumstances allow, and when prosecution is not undertaken in the country where the offence took place.

(*d*) That, where not already available, governments consider supplying qualified officers with general authorization to search for evidence of violations of the narcotics laws, thus avoiding the delay which must arise when a separate authority has to be sought in each case.

(*e*) That governments give every attention to the prompt submission of laws and regulations dealing with narcotic drugs as required by the international narcotics treaties.

As to administrative measures

(*f*) That in countries where a major narcotic problem exists there should be a central directing or co-ordinating authority, and where several enforcement services are involved one should have primary responsibility with the others required to assist by carrying out clearly defined functions. (The Mission would not limit the application of this principle to such countries, but it stresses the special need for central control or co-ordination where the problem is greatest.)

(*g*) That countries give as high a priority as is possible to the supply of such equipment as may be needed to permit enforcement services to operate with a maximum degree of efficiency.

(*h*) That attention be given to simplifying the procedure and seeking as much uniformity as possible in the reporting of individual narcotic cases to the United Nations and to the International Criminal Police Organization including its national central bureaux.

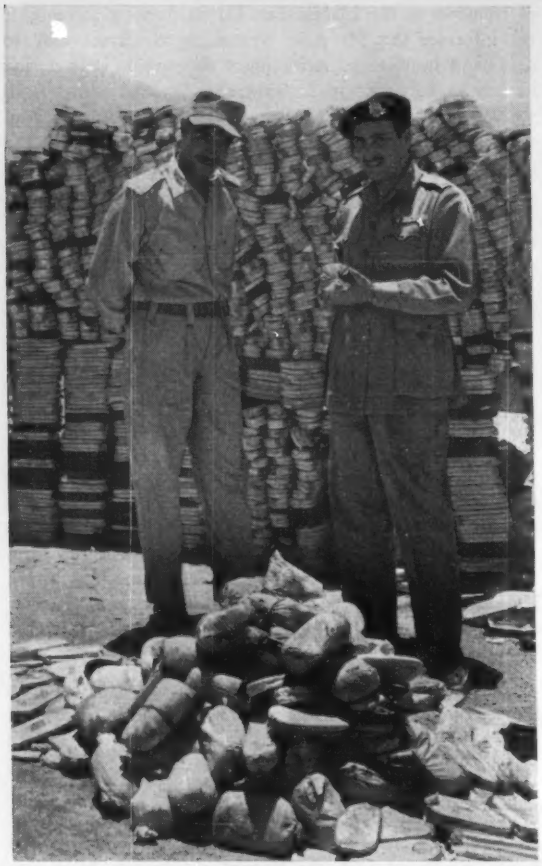

FIGURE 2
Other example of narcotics seized (the flat packages are " pantoufles " of hashish)

and mountain terrain over which smugglers operate, and it toured a hospital devoted entirely to the treatment of addicts.

As authorized by the Council resolution, the mission made confidential communications direct to certain governments on matters which were domestic rather than international in character, and which, in the judgement of the mission, could best be dealt with in this fashion. Included in these communications were certain recommendations thought to be appropriate; this procedure was found to be useful and convenient.

The report of the mission to the Commission on Narcotic Drugs was adopted and signed by its members on 20 October 1959 and communicated to the Secretary-General for transmission to the Commission. The mission's report was unanimous except for a reservation by Mr. Inanç on a procedural matter. Mission members recorded their appreciation for the cordial reception extended and the understanding co-operation given by all authorities and officials visited. They hoped that their efforts would contribute in some degrec towards an improvement of the traffic situation in the region.

At the outset, the mission considered it essential to describe briefly the illicit traffic situation in the region. It approached this situation as a regional problem, a point of view which was confirmed by the information it obtained, particularly from consultations with officials. The mission focused attention on the serious features of the illicit traffic, especially the aspects that are regional in character, giving less attention to features which are largely of national interest. It found that there was a problem in this region and one of serious proportions. There was a substantial cannabis (hashish) production and consumption; there was a large opium production and consumption, and opium derivatives went from this region to other parts of the world and in particular to Europe and North America. There was no evidence of any significant importation of illicit drugs into this region from other parts of the world. Several indications were noticed of the growing use of the " white drugs " in the region, and there was also evidence of the export of the " white drugs ", particularly crude morphine, to markets outside the region. The regional traffic followed all routes, by land, sea and air. An important land route for the hashish traffic passed through the Syrian province of the United Arab Republic, Jordan, Israel and to the Egyptian province. The opium traffic to Egypt, too, followed this land route to a significant extent. Opium was converted to crude morphine to facilitate its transport via Syria, Lebanon or Turkey to European countries such as France and Italy for refining, whence it is directed towards North America. The mission noted that along the main routes and in border areas there are features which work to the advantage of the smuggler. There are tribes, some of them nomadic, that span frontiers and whose members have loyalty to the tribe rather than either country. There are regulations in some border areas permitting residents to move freely within a specified distance on either side of the frontier. There are families and groups that have engaged in smuggling for generations and look upon it as a way of life rather than a criminal undertaking. Some of these groups did not hesitate to resist by armed force if threatened whith apprehenston. The mission recorded some of the tactics used by smugglers which rendered the work of enforcement services challenging, dangerous and difficult.

Several suggestions for improvement of the situation came before the mission or originated within the mission itself, and a discussion of the more important suggestions was included in its report. The proposal for the establishment of a United Nations regional narcotics bureau, in the same form as previously submitted to the Narcotics Commission, was recommended to the mission by representatives of the United Arab Republic, Saudi Arabia, Jordan, Yemen and Kuwait. The mission noted that there already existed within the United Nations official machinery for collecting and collating general intelligence on the narcotics traffic; there was also officially recognized machinery for co-ordinating and supporting enforcement action, this in the form of the ICPO-INTERPOL; there was also the Permanent Anti-Narcotics Bureau of the Arab League to encourage better enforcement in member States of the League. The proposed bureau would differ from other organizations in that it would have certain

supervisory or executive functions within national territories. "The principle of national responsibility arises here. Is it wise to interfere with that principle, which is stated in Article 2, paragraph 7, of the United Nations Charter? If responsibility is divised in any degree where would accountability lie in case of failure to meet international commitments? And, aside from all other factors, how could such a bureau operate successfully in the region without the whole-hearted participation of all the countries?" (This was in respect of the stated attitude particularly of Lebanon and Turkey.) On the other hand, the mission considered that a small group of United Nations experts might with advantage visit the area periodically, consult with government officials, carry out such other functions as are given them and thereafter report as might be arranged.

A number of countries urged the need for greater co-operation at the working level, especially along frontiers. This need in many sections was clear and frontiers instead of acting as barriers to smugglers actually in some areas facilitated their activities. However, to get improvement in co-operation at working level it was essential to have broad and comprehensive agreements between neighbouring countries, and the mission mentioned the recently concluded Turco-Iranian border pact as a pattern which could be followed with advantage by other countries.

The effective control of cultivation of narcotics raw materials is essential to suppressing the national and regional traffic in drugs. The mission recorded that from its discussions with Lebanese officials it was clear that the large-scale production of hashish was almost inseparably linked with other social and economic problems. On the other hand, neighbouring countries continued to suffer from this production and the mission "was not informed of any concrete plans for eliminating hashish cultivation". In respect of opium cultivation the mission noted the new Turkish law enacted in July 1959 which promised to bring the control of opium production in that country into conformity with the requirements of the 1953 Opium Protocol.

The mission emphasized the necessity for a strong national policy and machinery to control illicit trafficking. "Generally speaking, it seems beyond dispute that a fundamental requirement for good enforcement in any area is determination of national governments to eradicate the illicit narcotics traffic within their borders. Where such a determination exists and is coupled with a readiness to co-operate fully and wholeheartedly with neighbouring States, the narcotic problem will be kept under control. There must be strong, honest and well-directed administrative and enforcement machinery in each country to apply the legislation and carry out the policy of the government. Where such machinery is found, not only is the standard of national enforcement high, but international agreements may be applied fully and effectively."

In view of the international nature of the traffic, a number of suggestions were made to facilitate prosecution and conviction of international traffickers, including the recognition of foreign convictions for narcotics offences, extension and use of conspiracy proceedings to get at ring-leaders, and separate penalty provisions for persons proven to be leaders in smuggling and trafficking schemes.

The existing international system of reporting of illicit trafficking and the facilities for prompt transmission of information of the ICPO had proved their value. What was needed was fuller and more effective utilization of the existing machinery in this regard. A number of inquiries concerning technical assistance of different kinds were received by the mission. It drew attention to the existing facilities of technical assistance programmes of the United Nations and other international agencies.

Finally, the mission incorporated a set of recommendations which it considered useful for the guidance of governments and the Narcotics Commission. These are reproduced below, as follows:

As to laws and regulations

(*a*) That where applicable governments of countries in the region be urged to consider the need for exemplary penalties for smugglers and traffickers together with the desirability of having separate penalty provisions for these crimes.

(*b*) That conspiracy prosecutions or some other procedure be used to identify and prosecute ring-leaders in narcotic smuggling and trafficking gangs.

(*c*) That the principle of extra-territorial prosecution for narcotic offences be made use of to the fullest extent possible wherever the laws, facts and circumstances allow, and when prosecution is not undertaken in the country where the offence took place.

(*d*) That, where not already available, governments consider supplying qualified officers with general authorization to search for evidence of violations of the narcotics laws, thus avoiding the delay which must arise when a separate authority has to be sought in each case.

(*e*) That governments give every attention to the prompt submission of laws and regulations dealing with narcotic drugs as required by the international narcotics treaties.

As to administrative measures

(*f*) That in countries where a major narcotic problem exists there should be a central directing or co-ordinating authority, and where several enforcement services are involved one should have primary responsibility with the others required to assist by carrying out clearly defined functions. (The Mission would not limit the application of this principle to such countries, but it stresses the special need for central control or co-ordination where the problem is greatest.)

(*g*) That countries give as high a priority as is possible to the supply of such equipment as may be needed to permit enforcement services to operate with a maximum degree of efficiency.

(*h*) That attention be given to simplifying the procedure and seeking as much uniformity as possible in the reporting of individual narcotic cases to the United Nations and to the International Criminal Police Organization including its national central bureaux.

(*i*) That technical assistance be made use of to the greatest extent possible within the framework of the present technical assistance programmes, particularly in the fields of statistical studies, addiction treatment, specialized training including the use of fellowships and the adaptation of new crops to replace narcotic plant cultivation.

As to national policy

(*j*) That all countries in the region be urged to consider the vital importance of a strong, positive and well-enforced national programme as a necessary foundation for good regional and international control measures.

(*k*) That the great value of bilateral agreements between governments of limitrophe countries be recognized, and that on the basis of these agreements every possible action be taken to encourage and improve direct liaison between enforcement agencies, particularly those working along national frontiers.

As to international obligations and machinery

(*l*) That countries of the region be urged to improve the accuracy of reports required by international narcotics treaties and to give attention to the importance of prompt submission.

(*m*) That the facilities and machinery of the International Criminal Police Organization be made use of promptly and to the fullest possible extent in the investigation of individual cases.

(*n*) That governments of countries in the region that have not already done so be urged to ratify those international narcotics treaties which still await their official support.

(*o*) That a small group of, say, three United Nations experts visit the region periodically, consult with government officials, carry out such other functions as are given them and thereafter report as may be arranged.

Reservation by Mr. Inanç on recommendation (o)

Mr. Inanç believes that such a recommendation which invites new obligations for governments and is not suggested by any country is not within the jurisdiction of the Mission. It is up to the Commission on Narcotic Drugs and the Economic and Social Council to consider the matter.

Observation on the reservation by Mr. Inanç

The other three members of the Mission believe that Economic and Social Council resolution 689 I (XXVI) provides authority for recommendation (*o*).

At its fifteenth session the Commission on Narcotics Drugs was informed of the work done by the Survey Mission. On its recommendation the Economic and Social Council adopted at its thirtieth session a resolution in which it thanked the members of the Survey Mission for their excellent work and outlined other actions.[1]

[1] For the substance of that resolution, see next article in the present issue: the fifteenth session of the Commission on Narcotic Drugs and the thirtieth session of the Economic and Social Council.

The Fifteenth Session of the Commission on Narcotics Drugs and the Thirtieth Session of the Economic and Social Council

The Commission on Narcotic Drugs met in Geneva from 25 April to 13 May 1960 and the Economic and Social Council met in Geneva from 5 July to 5 August 1960.

The Commission elected as officers:

Chairman: Mr. K. C. Hossick (Canada)

First Vice-Chairman: Mr. M. Ozkol (Turkey)

Second Vice-Chairman: Mr. A. Ismail (United Arab Republic)

Rapporteur: Dr. J. Mabileau (France)

The Commission and the Council discussed, *inter alia*, the following items.

Technical assistance for narcotics control

The continuing programme established by General Assembly resolution 1935 (XIV) came into effect as from 1 January 1960. The Council noted that the projects for 1960 included a regional consultative group, assistance to enable the Permanent Anti-Narcotics Bureau of the League of Arab States to invite additional participants to its annual conference, and fellowships in enforcement, in the organization of rehabilitation services, and in determination of the origin of opium, for officials from six countries. The meeting of the regional consultative group for South-East Asia, covering questions of opium policy and enforcement problems, was planned to take place in the last quarter of 1960.

Resolution 1395 also invited the World Health Organization and the Food and Agriculture Organization to continue to maintain and develop their activities touching narcotics control. The Council noted, as regards the FAO, that the Special Fund project for a survey of the Riff region (Northern Morocco), with FAO as administering authority, would facilitate the replacement of cannabis (kif) culture as part of the general redevelopment of agriculture and of the reafforestation of the region. WHO had also been able to grant a number of fellowships for treatment of drug addiction. The hope had also been expressed in the General Assembly that governments which wished assistance in the field of narcotics control and were able to do so would use the EPTA; and the Council was glad to note that this had been done in a number of instances.

Preliminary information was also furnished to the Council on projects for 1961. It noted that regional projects were envisaged for the Middle East, on enforcement questions, and for Latin America, on enforcement questions and problems of the coca leaf and cocaine. Applications or preliminary inquiries for fellowships or experts had been received from thirteen countries, in enforcement, in central administrative services concerned with the control of narcotics, and in determination of opium origins. The Council noted that the Secretary-General had proposed $75,000 for this programme in the regular budget for 1961.

Implementation of international narcotics treaties

The Commission examined the progress made during the last year towards universal adherence to the narcotics treaties. At its twentieth session the Council had adopted, on the Commission's recommendation, resolution 730 C (XXVIII) in which it urged governments which had not yet done so to accede within the shortest possible time to the Paris Protocol of 19 November 1948 bringing new narcotic drugs not covered by the Convention of 1931 under international control. The Commission was informed of the acceptance of the 1948 Protocol by Brazil, El Salvador, the Federal Republic of Germany and the Ukranian Soviet Socialist Republic. During the previous twelve months information had also been received concerning the ratification or adherence to the 1953 Opium Protocol by six States.

In general it was found that governments complied with their obligations under the various narcotics treaties to supply information and reports. Several countries and territories, however, had not complied with the provisions of the international treaties relating to authorizations for the export of narcotic drugs. The Secretary-General was requested to remind governments of their obligations in this respect.

Changes in the Scope of International Control

Eight new drugs were placed under international control during the year. The Commission also decided to place under provisional international control, pending a decision of the World Health Organization, a new synthetic drug known as diphenoxylate, which was similar to pethidine, an addiction-producing drug under international control, and might thus be found to be dangerous itself.

Appointment of a new member to the Permanent Central Opium Board

Following the resignation of General Ibrahim El Tersawi, former Chief of the Anti-Narcotics Administration and the Ministry of the Interior, United Arab Republic, the Council elected Mr. E. S. Krishnamoorthy, Chairman of the Central Board of Revenue of India, who has been the Representative of India to the Commission on Narcotic Drugs in 1952,

1953, 1954 and 1960, as well as the leader of the Indian delegation to the United Nations Opium Conference in 1953.

Illicit traffic

In its annual review of the illicit traffic situation, the Commission was aided in its task by the Committee on Illicit Traffic and was also, as usual, assisted by observers from a number of governments and organizations. Amongst the conclusions reached by the Commission in its review of the illicit traffic were the following:

The main drugs in the illicit traffic continued to be opium and the opiates, cocaine and cannabis. The sources of the international opium traffic were located in the Far East and Near and Middle East. The traffic in opiates had wide international ramifications and there appeared to be a growing use of and traffic in diacetylmorphine. There was a substantial traffic in cocaine in South America where there was widespread illicit traffic in cocaine, mainly in Bolivia and Peru. Cannabis (marihuana, hashish, etc.) traffic was heavy and widespread. Seizures of other "natural" drugs and of synthetic drugs continued to be relatively insignificant.

The international illicit traffic was higly organized and could only be combated by close international co-operation. The Commission welcomed the conclusion of the recent Turko-Iranian border pact and hoped that the spirit of co-operation shown therein would also be emulated by the countries of the Far East and South America, in which drug traffic was rife. The attention of governments was also drawn to the benefits resulting from close direct contacts between the authorities entrusted with controlling international traffic.

Inter-country Regional Meetings

During the year, inter-country meetings on the control of illicit traffic have taken place in South America: a meeting on the illicit traffic in cocaine and coca leaves was also held at Rio de Janeiro from 21 to 25 March 1960. A meeting of enforcement officers in the field of drug traffic was held at Lahore, Pakistan, from 18 to 23 January 1960 under the aegis of the ICPO-Interpol. Also, a conference on narcotic drugs of the League of Arab States took place in Cairo from 7 to 10 March 1960. The Council was in full agreement with the Commission's view that such regional conferences were important and useful and hoped that there would be further developments in that direction.

Middle East Narcotics Survey Mission

The Commission was informed of the work done by the Survey Mission, and of the report made by it and also, orally, by the Chairman of that Commission, Mr. L. H. Nicholson. It was generally remarked that the Commission had accomplished an arduous task in a commendable manner and that its report should be of great help in dealing with the traffic situation in the Middle East and other regions similarly affected. On the recommendation of the Commission, the Council adopted resolution 770 C (XXX) in which it thanked the members of the Survey Mission for their excellent work; drew the attention of the governments concerned to, and invited their consideration of, the specific recommendations contained in the report; drew the attention of governments to their obligations in the international narcotic treaties of combating the illicit traffic; drew the attention of governments in the region to the facilities available for technical assistance in the field of narcotics control; and requested the Secretary-General to study and take such steps as are feasible to simplify the current system of reporting on the illicit traffic.

Abuse of drugs (drug addiction)

The Commission made its annual review of the problems of drug addiction, paying particular attention to the question of statistical information and of scientific research. It noted that more data were available than in previous years and that although the different practices of governments regarding case finding, registration and reporting of addicts meant that figures on addiction were not necessarily comparable statistically, the data at hand made it possible to draw conclusions, however tentative, on the incidence of addiction and of the degree of seriousness of problems of the abuse of drugs in most countries and territories in the world.

The Council expressed its appreciation of the assistance given to the World Health Organization Expert Committee on Addiction-producing Drugs, and to the Commission in their work on drug addiction by the United States of America, especially through the controlled clinical research on the properties of narcotic drugs and in particular of new drugs. It was thought, however, that means should be found to expand research activities in this field and in various parts of the world, and, upon the Commission's proposal, the Council adopted resolution 770 D (XXX) inviting the World Health Organization, the United States of America, and other countries equipped to do so, to study the possibility and advisability of giving assistance in this field of research to such countries as might desire it; interested countries were also invited to consult the WHO; and the WHO was invited to consider the possibility of preparing a code of practices by which at present the addiction producing properties of drugs are established.

Proposed Single Convention on Narcotic Drugs

A plenipotentiary conference for the adoption of the draft Treaty will take place at the headquarters of the United Nations in New York during the period January to April 1961. In order to facilitate the work of the conference, governments and international organizations have been asked to forward comments on the third draft of the Single Convention to the Secretariat. As of 31 July 1960, 44 countries and 16 organizations had forwarded such comments.

Exempted preparations

Under the existing narcotic treaties there are two principal groups of narcotic drugs — one, generally referred to as group I, containing the more dangerous drugs, such as morphine; and the second, referred to as group II, containing the relatively less dangerous drugs, such as codeine. The main

difference between control applied to group I and that applied to group II is that the retail distribution of drugs in the latter group is not subject to control. Moreover, preparations of drugs of group II "adapted to a normal therapeutic use" are exempted from the bulk of administrative control provisions.

This broad description of exempted preparations of drugs of group II has, in practice, been differently interpreted by different governments. As a consequence, administrative difficulties have arisen such as those encountered in the application to such preparations of the import certificate and export authorization system — e.g., an exporting government considering a particular preparation to be "adapted to a normal therapeutic use" and thus to be exempted, the importing country, however, holding a contrary view.

The Commission studied the possibility of solving these difficulties under the existing treaty system by inviting the WHO to consider the possibility of adopting a procedure whereby this organization would receive suggestions from governments as to which particular preparations of drugs of group II should be exempted from control and of recommending, on the basis of such suggestions, particular preparations or groups of preparations for exemption as preparations "adapted to a normal therapeutic use". The Commission hoped that it would thus enable governments accepting the recommendations of the WHO to adopt a more uniform practice. The provisions of the third draft of the Single Convention on Narcotic Drugs on this matter are nearly the same as those of the existing treaty system. Under this draft the present drugs of group II would be listed in a schedule II and all exempted preparations in a schedule III. The Commission envisaged that the plenipotentiary conference to be called under Economic and Social Council resolution 689 J (XXVI) might decide to include in schedule III, on the basis of such recommendations by the WHO as those referred to above, individual preparations of drugs in schedule II, or closely defined groups of preparations of such drugs, rather than limit itself to including in schedule III such a general entry as "preparations adapted to a normal therapeutic use".

The Council, while taking note of this action of the Commission, felt it would be helpful to the delegates to the plenipotentiary conference if they had specific instructions from their governments on this subject, and that it would to this end be necessary that the technical services of the governments concerned be given an opportunity to consider the matter in sufficient time before the conference. The Council accordingly unanimously passed a resolution requesting the Secretary-General to invite governments to provide the WHO, before 15 October 1960, with a list of such preparations which they considered should be exempted from control. The WHO was invited, in the light of these suggestions, and in time, if possible, for circulation to governments before the plenipotentiary conference, to compile a list of preparations whose exemption it recommended. If the recommendations of the WHO were accepted by the conference, these preparations would be included in schedule III of the Convention.

It was the understanding of the Council that this resolution did not affect the Commission's action relating to the study of the possibility of making more uniform the practice of States in this connexion under the existing treaty system.

Opium and opiates

Scientific Research

The number of authenticated opium samples of the United Nations laboratory had substantially increased; however, samples were still lacking from certain regions. It was easy to understand the difficulties of the countries concerned, but the collection of authenticated samples could be completed only if the authorities in the regions or countries where illicit traffic originated were to make even greater efforts to seize illicit crops, authenticate them, and send samples of the opium produced to the United Nations laboratory.

The Commission took note of the great progress made by the United Nations laboratory in the development and application of simple methods for the determination of the origin of opium. Experiments made by the laboratory, and by the collaborating government laboratory in Yugoslavia, had proved the high degree of reliability of these methods. At the request of several governments the laboratory had determined the geographical origin of many samples of opium seized in the illicit traffic.

The control of poppy straw

Morphine can be extracted either from opium or poppy straw. In the third draft of the Single Convention there are provisions which would subject poppy straw destined for such manufacture to about the same measures of control as those proposed for opium. However, a number of governments felt that the risk involved in poppy straw does not justify such rigid measures. Since many countries do not cultivate the opium poppy and have no experience in this matter, which will constitute one of the principal unresolved questions before the plenipotentiary conference, the Council felt that an independent study on the possibility of the misuse of straw for illicit purposes and the degree of such risk would facilitate the work of delegations to the conference. Accordingly the secretariat was requested to arrange for the preparation of such a study, if possible in time for it to be circulated to governments for their consideration before the conference.

Coca leaf

It was noted that the First Inter-American Meeting on the Illicit Traffic in Cocaine and Coca Leaves (Rio de Janeiro, March 1960) recommended *inter alia* the control of the licit cultivation of the coca leaf and the abolition of the habit of coca leaf chewing at the earliest possible date, and drew attention to the importance of technical assistance from the United Nations and specialized agencies.

The Commission also noted that coca leaf chewing was reported as decreasing in Bolivia, where the young people did not seem to be attracted by this practice; that production of coca leaves in Peru had slightly decreased; that in Colombia there remained only about 500,000 coca bushes in existence and the Government was considering their purchase in order

to proceed to their destruction. On the other hand, the problem was still serious and the countries concerned had indicated their interest in obtaining technical assistance to help them, *inter alia*, in the determination of addiction incidence, in establishing and maintaining efficient control measures, and in carrying out crop substitution and health education campaigns.

The Commission expressed the hope that in future years complete production and consumption statistics for the coca leaf would be made available by all the countries concerned.

Cannabis

The Commission was gratified to learn that the prohibition of the production of cannabis had now been extended to the whole of Morocco, and that the government of that country envisaged measures to replace its cultivation by other crops.

In accordance with a resolution taken at the fourteenth session of the Commission, a study had been made on the ways to identify cannabis. Reactions used for this identification had been checked for their specificity. Also, an investigation of the microscopic characteristics of cannabis had been carried out together with a study of the method of identifying it by means of its absorption characteristics in the ultra-violet region of the spectrum. Several representatives stated that their countries were either engaged in research akin to that done in the laboratory or considering the possibility of doing so.

Synthetic and other new narcotic drugs

The Commission studied up-to-date information on synthetic and other new narcotics, including statistical data on the consumption of a number of natural and synthetic narcotics, expressed in terms of doses consumed per thousand of population. This study revealed a considerably varied range of consumption rates, even in groups of countries with similar economic, social and climatic conditions and equivalent medical services.

The Commission also reviewed the problem of identification of new narcotics, mainly synthetics, by enforcement officers. Replies to a recent questionnaire sent out to governments members of the Commission and interested international bodies and organizations, as regards the proposal to add to the designation of these drugs, reference numbers which would refer to an official list of narcotic drugs under international control, were examined. No definite conclusion could be drawn from those replies as to the extent and nature of the difficulties experienced by enforcement officers, but the Commission decided that its members might wish to give more thought to the matter and decided to consider the question further at its next session.

Carriage of narcotic drugs in first-aid kits of aircraft engaged in international flight

In 1957 the International Civil Aviation Organization requested the United Nations and the World Health Organization to study the legal and medical aspects of the carriage of narcotic drugs in first-aid kits of aircraft engaged in international flight, because some of its members had reported difficulties arising from differences in national regulations governing that carriage. The study was to insist on the safeguards against abuse of such narcotics and the establishment of uniform principles under which the drugs might be used and carried. As a result, the Secretary-General, in co-operation with ICAO and WHO and in consultation with the ICPO-Interpol, prepared a set of essential requirements to be recommended to governments as a basis for control of narcotics so carried. The Commission had to take into account the need for measures against the abuse and theft of the drugs and the need to interfere as little as possible with the efficient operation of the aircraft. It also felt that uniformity of measures of control by various countries could be obtained only on general principles and not in matters of detail. On the recommendation of the Commission the Council adopted resolution 770 E (XXX), which contains recommendations to governments set out in broad general principles and also some detailed proposals which might be useful to governments in implementing recommendations.

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